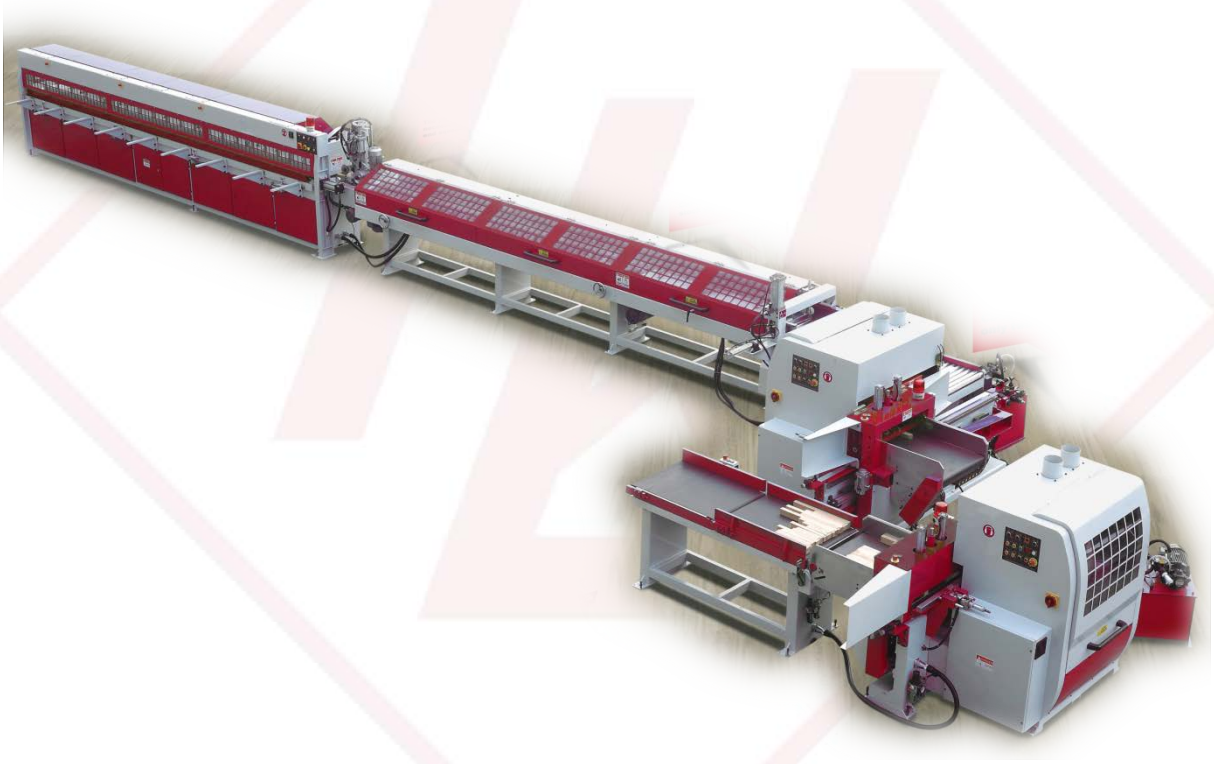
USER MANUAL

WINTER automatische Keilzinkenanlage

Finger Jointing Line Typ EXPERT



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SAFETY INSTRUCTION

Any operator must be trained before operating the line, and he must understand the structure and performance for the line thoroughly.

Before operation, the operator must be familiar with the manual for the line and keep the safety essentials by heart.

Wear protective clothes before operation and in avoid occurring any accident from running parts.

This line only can be used within the designed applicable range. It can't be used overload in avoid of effecting the useful life for motors and other parts

During operation, it's strictly forbidden to approach or touch the running parts of the line by hand without any protection in avoid occurring any accident.

Keep good light for working site, and make sure there are no obstacles to affect the operator. Don't leave any tools and material on the line.

Safety Regulation

Make sure there is steady air pressure and power supply. Otherwise, electric appliance elements might be damaged seriously.

Work object:

This line only be used for process wood material, and it's not permitted to process any metal or plastic material by this line.

Depositary:

It's strictly forbidden to keep this line outdoor and the places with high temperature and explosive easily.

It's not allowed to make operation until the complete line has been fixed on the ground.

Before operation, ensure the oil pressure system is in good condition, and the rotary direction for finger joint cutters and all of saw blades are correct and have been locked tightly; otherwise, it's not permitted to operate the line.

During operation, in accord to avoid damage in human body, it's strictly forbidden to put your hands on gantry of the conveyor belt, saw blades, cutters and working tables for timber thrusting.

In case any unusual noise occurs, you stop the line immediately and find out the troubles

Check the air regulator for the air supply system at any time. If the pressure is insufficient, you must adjust it. It's consisted of two cups of air regulator, one is to store water from air, and the other is to add oil to lubricate the cylinder.

Warning Plates

ELECTRIC SHOCK

ROTATION

NOISE

KEEP HANDS AWAY

LUBRICATION / ADD OIL

DON'T TOUCH

EARTHING

EMERGENCY STOP

SPECIFICATION

Specification

SN	Parameter	Typ EXPERT
1	Table size	630*800mm
2	Min. working size L*H	150*20mm
3	Max. working size L*H	900*150mm
4	Max. working width of table	590mm
5	Cutter spindle diameter	Ø50mm
6	Cutter spindle motor	15kw
7	Cutter spindle speed	6750rpm
8	Feeding motor	0.75kw
9	Hydraulic pump power	2.2kw
10	Drive of hogger and scoring saw	5.5kw
11	Hogger spindle diameter	Ø30mm
12	Scoring saw spindle diameter	Ø25.4mm
13	Max. thrust force of working table	840kg
14	Scoring saw specification	Ø110*2.2mm*30T
15	Hogger specification	Cut-off saw: Ø255*Ø50*4.0mm*80T Hogger: Ø238*Ø30*20mm *12T
16	Cutter specification	Finger Joint Cutter: Ø160*Ø50*4.0mm*2T Bottom Cutter: Ø160*Ø50*10.0mm*2T

Machine Noise

DECLARED NOISE EMISSION VALUES in accordance with ISO 7960.

	Idling	Operating
Declared A-Weighted Sound Power Level Lward, in Db re 1 Pw.	89	91
Declared A-Weighted Emission Sound Pressure Level, 1pAd, in dB re 20 µPa, at The operator's position.	76	78

Values determined according to specific test code ISO 3746.

The figures quoted are emission levels and are not necessarily safe work levels. Whilst there is a correlation between emission levels and exposure levels. This can't be used reliably to determine whether or not further precautions are required. Factors that influence the actual

level of exposure of work piece in clued the duration of noise (i.e. the number of other adjacent machines).

Also, the permissible exposure levels can very from country to country. The information, however, will enable the machine user to make a better evaluation of hazard and risk.

Function of the Line

The line is mainly used for processing short timber, short timber should be lengthened by glue-spreading automatically, in this way you can make a short timber into a longer one, and made inferior timber as quality one, the timber availability has been improved efficiently and increased its utilization value.

The processes of comb-tooth, glue spreading and pressing have been realized automatically. It decreases the labour efficiently and rectifies the defects in past, such as redundant operation steps and artificial faults etc. it stressed the advantages of working rapid and accurate.

The movement guide for working table adopts precise linear guide imported from abroad. Its guide accuracy is high, friction coefficient is low and with longer service life.

The automatic glue spreading not only can realize well-distributed glue spreading, but also can save glue and purify the environment.

Adjust the position switches for press machine, and an ideal length can be obtained automatically.

Adjust the oil pressure according to different timber sorts and specifications.

This line should be operated by two operators. One is in charge of letting off timber; the other one is in charge of monitoring and controlling the timber condition from shapers to press machine.

Before processed by this line, the timber should be processed by four-side moulders. The error of width cannot exceed 1.5mm, so as to height.

The suitable power supply for this line is 380V, 50HZ, and air supply is 6kg/cm2~8kg/cm2.

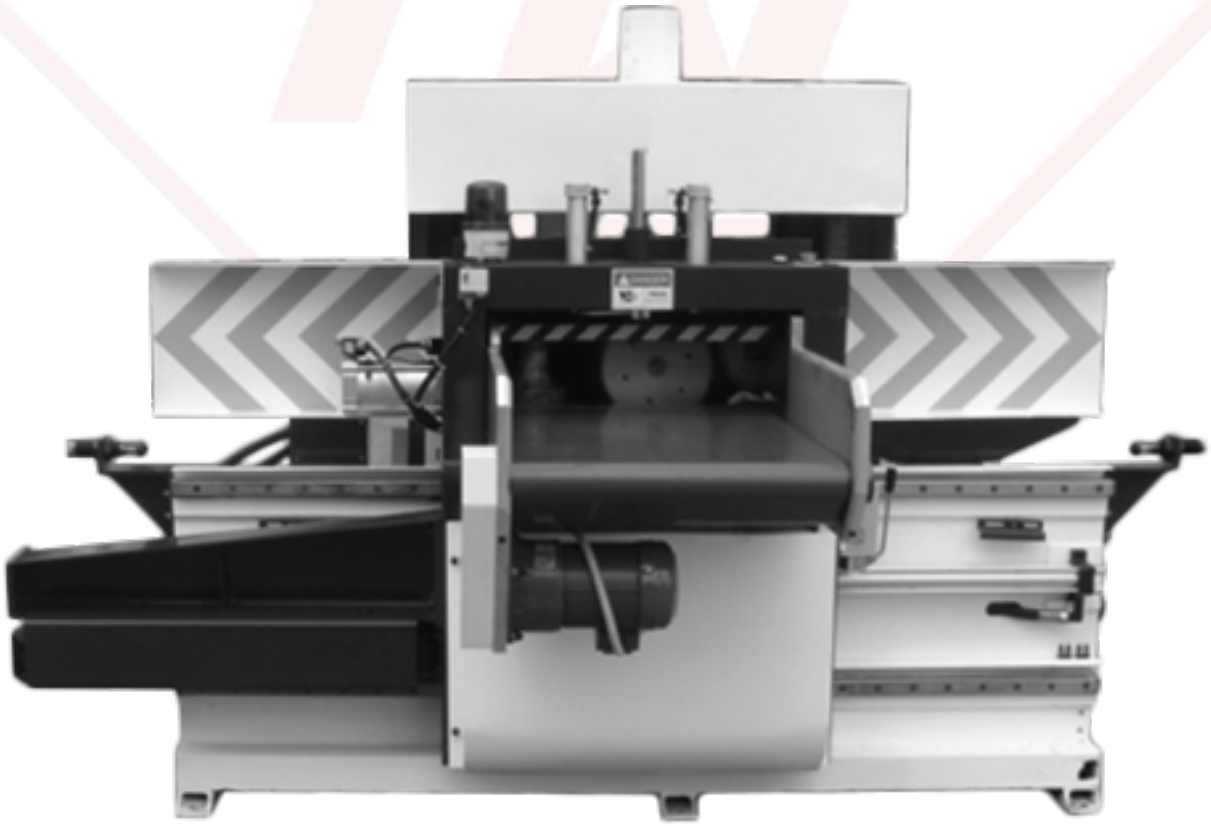
There must be an electrician who understands electric appliance diagrams. This line is suitable for working timber only. Timber with extra-length or extra-big size, or too small or too short timber can't be processed by this line. The suitable timber for this line:
Max: 700*150*80mm Min: 180*30*20mm (L*W*H)

Dust collection system must be equipped for line.

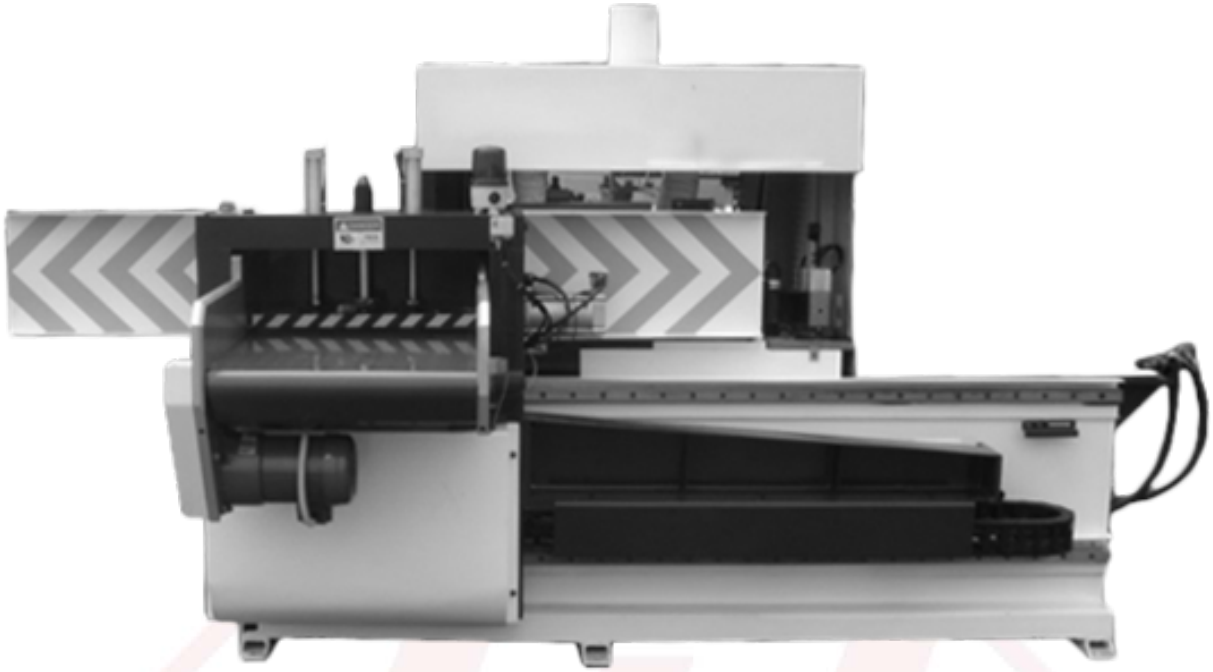
Legend of the Machine

Belt conveyor:

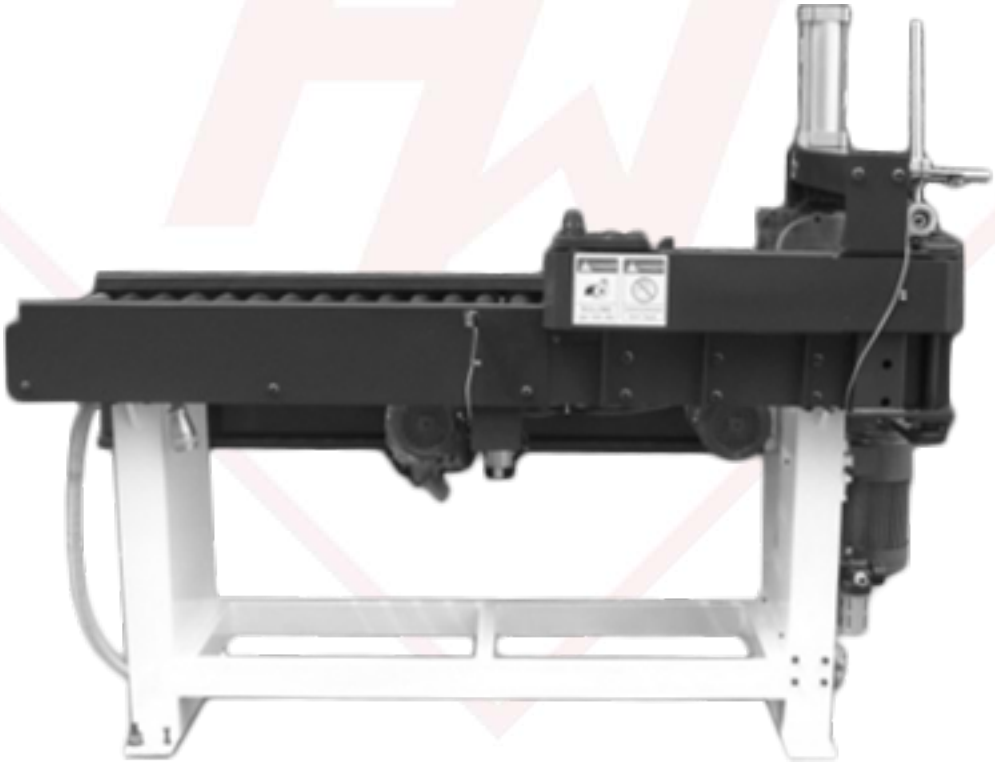
First automatic finger shaper:



Second automatic finger shaper with glue applicator:

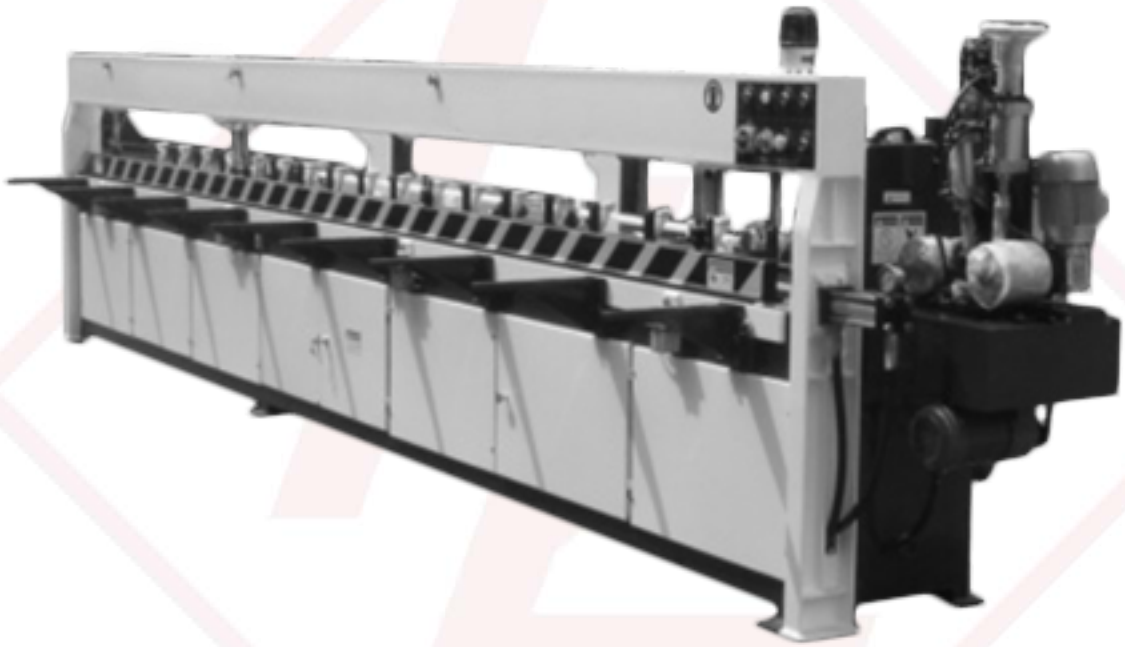


Roller conveyor:

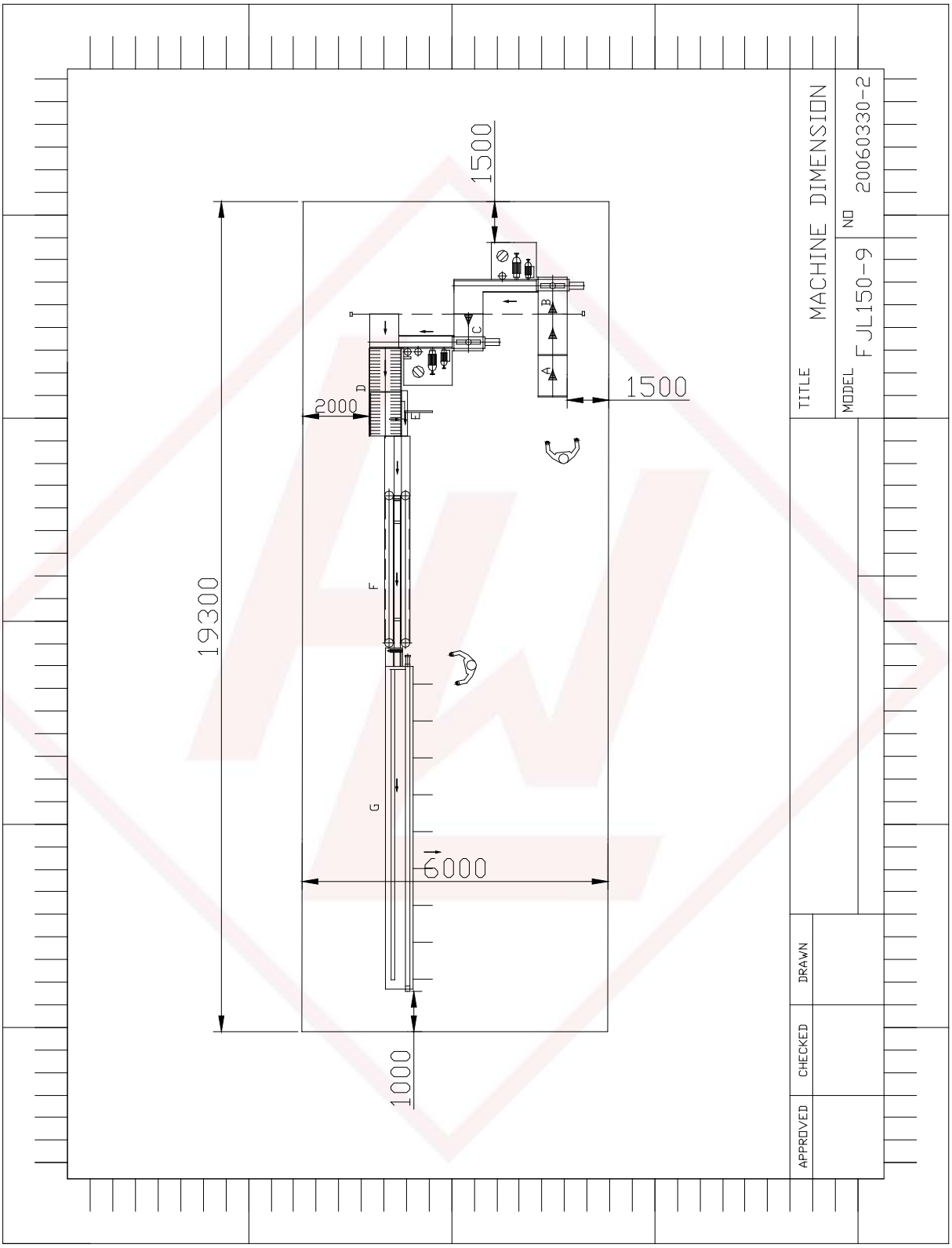


Chain conveyor for pre-pressing:

Automatic finger press:



Machine Dimensions



INSTALLATION

Safety Rules for Machine Movement

Pay special attention to carry the machine to avoid occurring any accident, such as: collision, falling down and intense vibration, which will affect the accuracy of the machine.

Machines need installed in such environment with well ventilation and dry. Also the ground must be firm and flat. And the machines must be horizontal level and fill up.

Clean all oil foul, impurities and dust before operation after finishing installation.

Connect the main power supply and air supply passages as well as the lighting and lubrication, etc.

Make sure all moving and running elements are in good condition before connecting the power and air supplies. Guarantee that the hold-down lock devices are firm and reliable without any obstacles.

Lifting the Machine/Drawing

When transiting the machine, keep it balance.

Use a forklift with sufficient loading capacity to lift the machine.

Ask another person for help to guide the way when lifting the machine.

The forks of the forklift must protrude from the machine underside.

The forklift must only be driven by an experience forklift drive.

The cushion should be used between metal rope and machine.

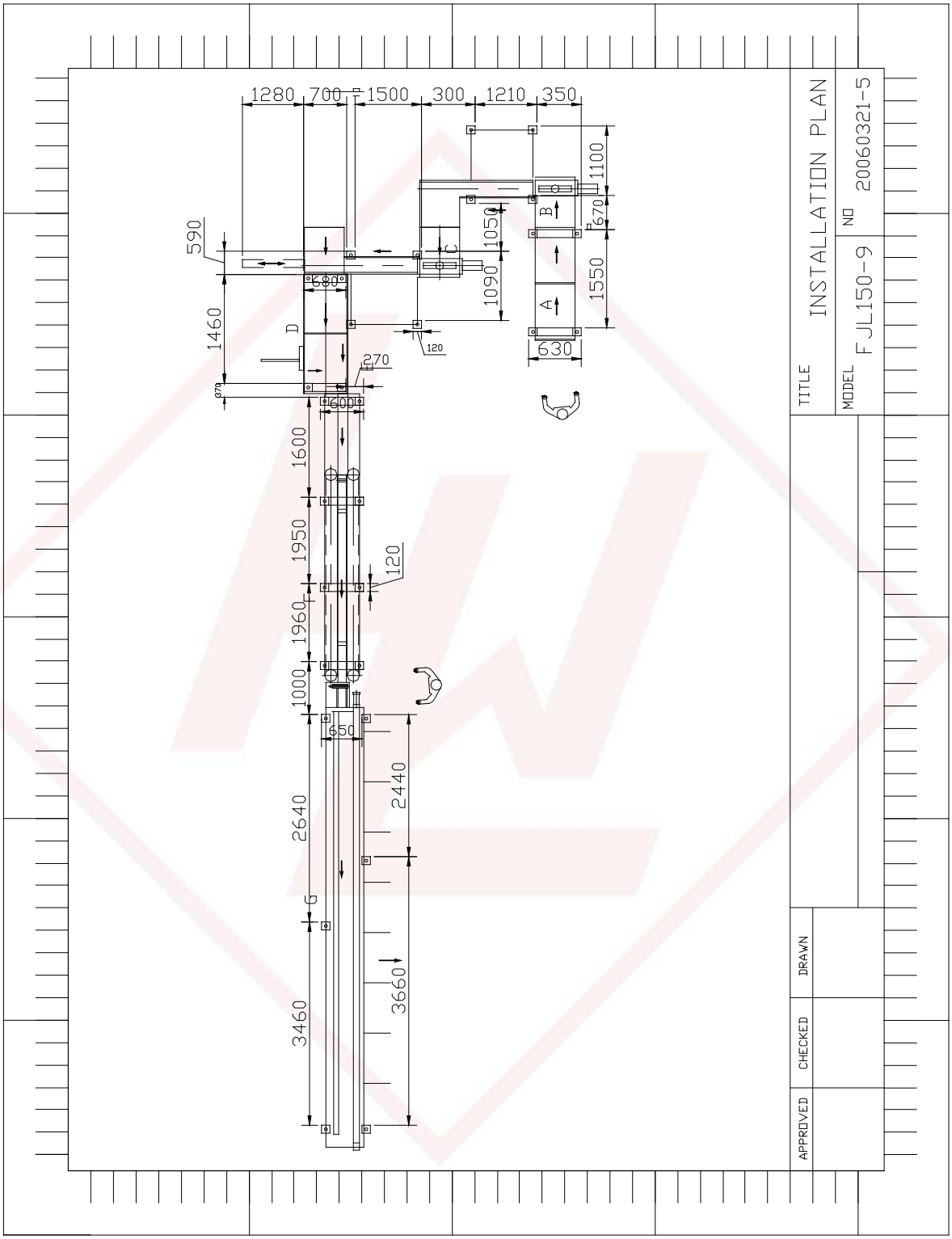
Install the base of the machine on the ground, then level the working table.

Selection of Location

Please use the line in the following condition.

Ambience temperature	-10℃～45℃ (no ICE)
Ambience temperature	Below 90% RH (NO DEW)
Depositary temperature	-20℃～+65℃
Environment	Indoor (no causticity gas, combustible gas, oil gas etc.)
Altitude	Below 1000m

Installation/ Drawing

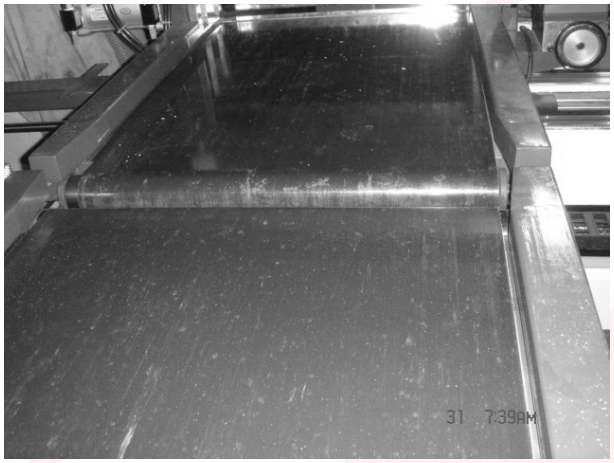


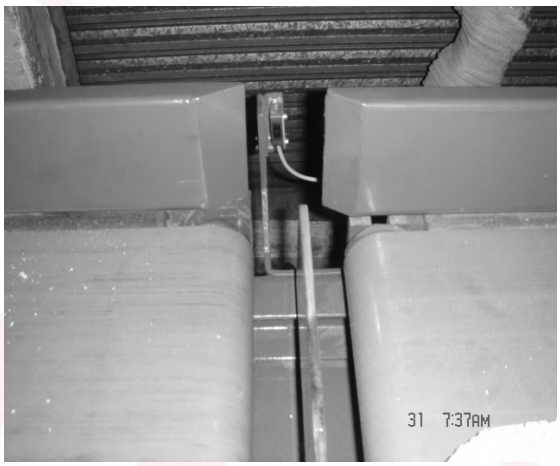
Installation and Levelling

Move the working table of finger shaper to the front.

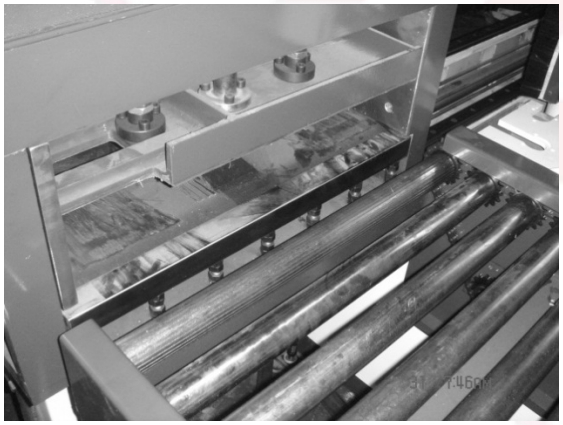
Move belt conveyor, and make its working table and the finger shaper's working table in a line, then regulate the foundational screw to make the two tables in the same height.

Move working table of finger shaper to the machine, and move the working table of the finger shaper to the front then make both of the tables in a line and regulate the screw to keep them at in the same height.





Move the working table both of finger shaper to the front of the machine, and move the roller conveyor to the same line with the working table of the finger shaper, then regulate the screw to make them at the same height.



Move the working table both of finger shaper to the front of the machine, and move the roller conveyor to the same line with the working table of the finger shaper , then regulate the screw to make them at the same height.

Move chain conveyor, make its working table with the working table of roller feeding in a line, and regulate the screw to make the two tables at the same height.

Move the finger press and make its working table with the working table of chain conveyor in a line, then regulate the screw to make them at the same height.

Power Supply Requirement

The suitable power supply for this line is 380V, 50HZ, and air supply is 6kg/cm2～8kg/cm2.

Connection of Power Wires

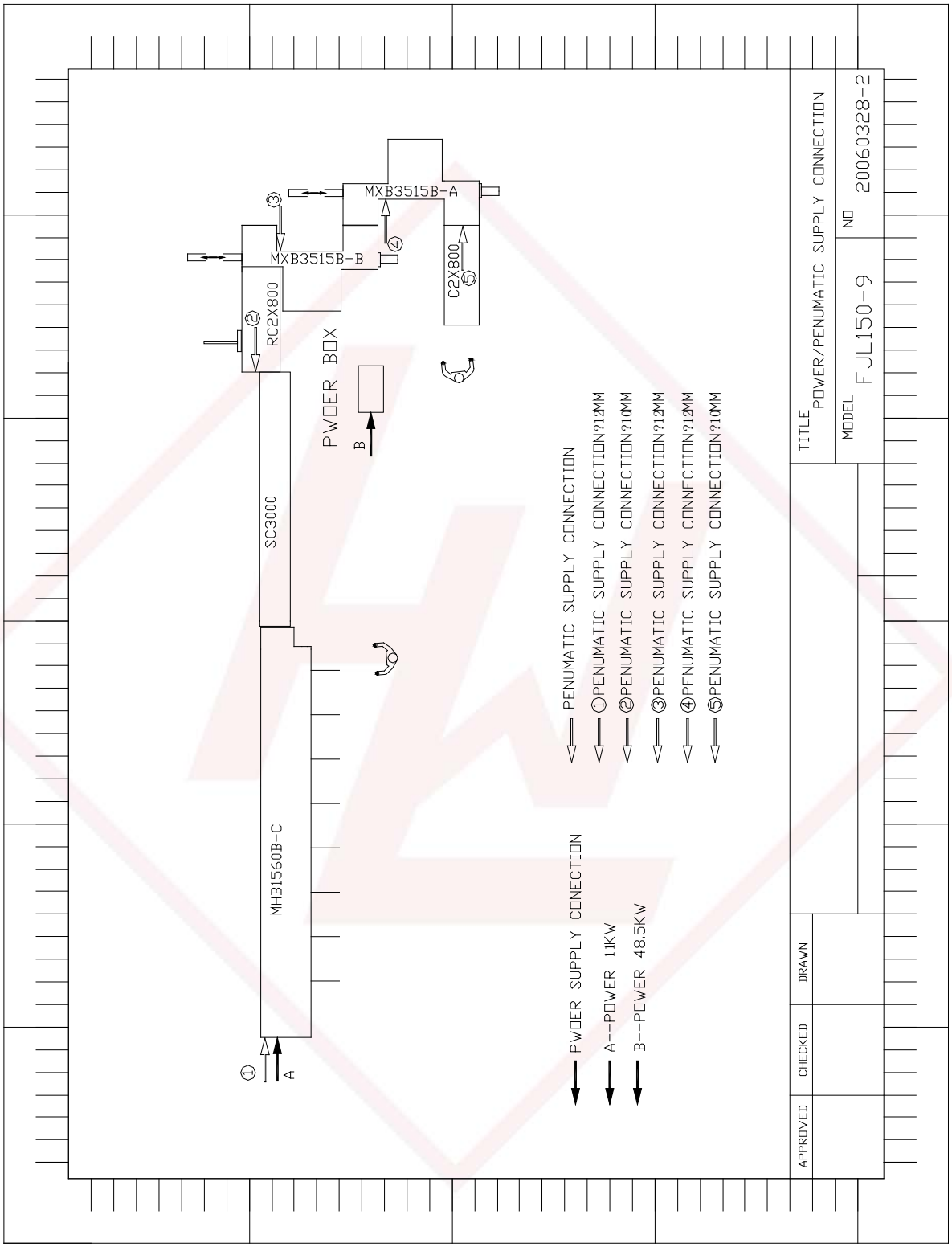
Before connecting the power wires to your factory power supply, reconfirm that the voltage of the line is the same as that of your power supply.

Connect the power wires to L1, L2, L3 and PE.

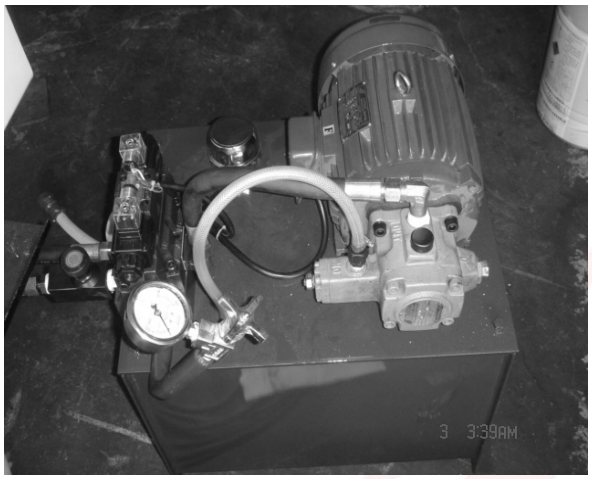
After the power wires have been connected, make sure they are connected to the correct points. Shown as follow:

- The line should be properly grounded to prevent the danger of electrical shock.
- All electrical connections should be performed by qualified operators.

Pneumatic / Power Supply Connection



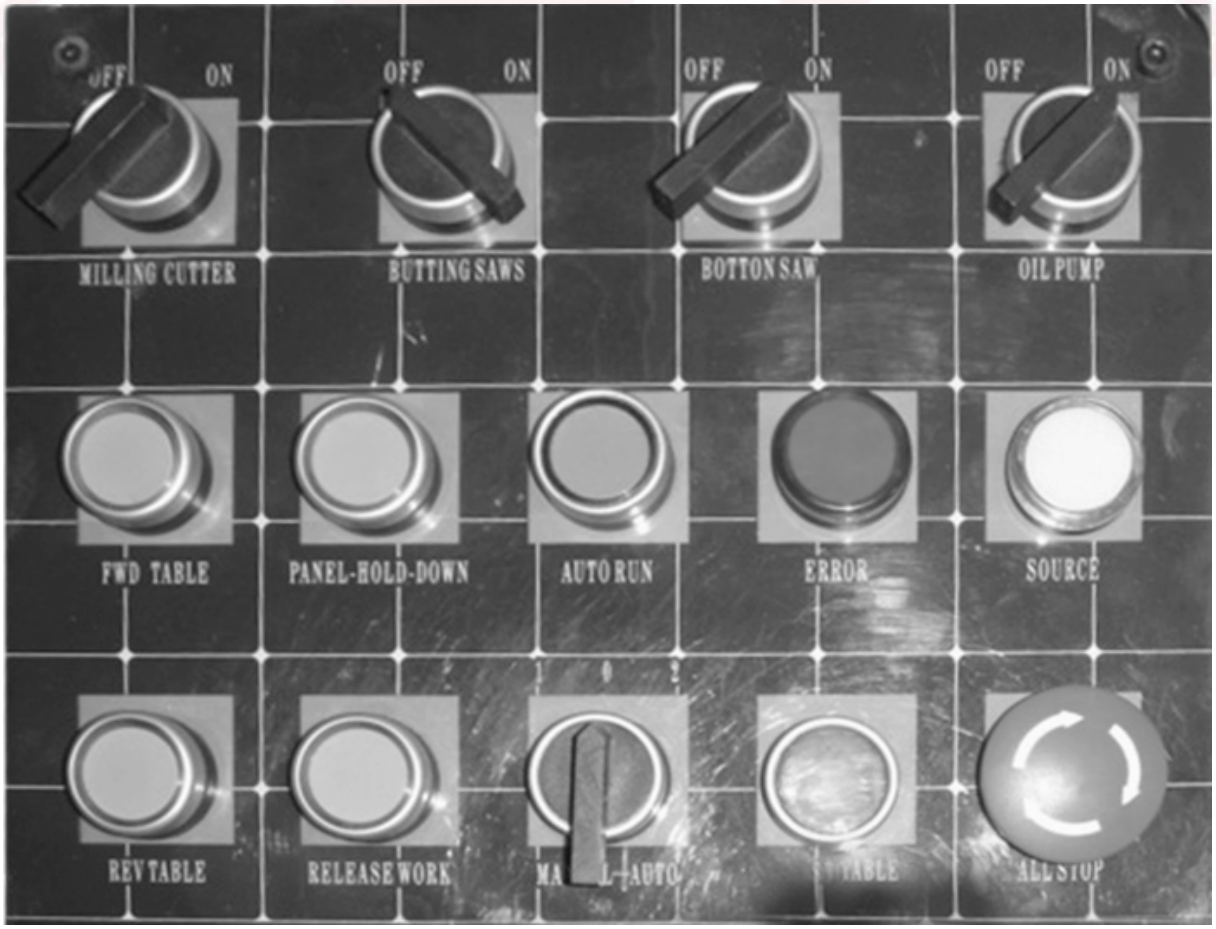
Hydraulic Pressure Supply Connection



OPERATION

Control Panel

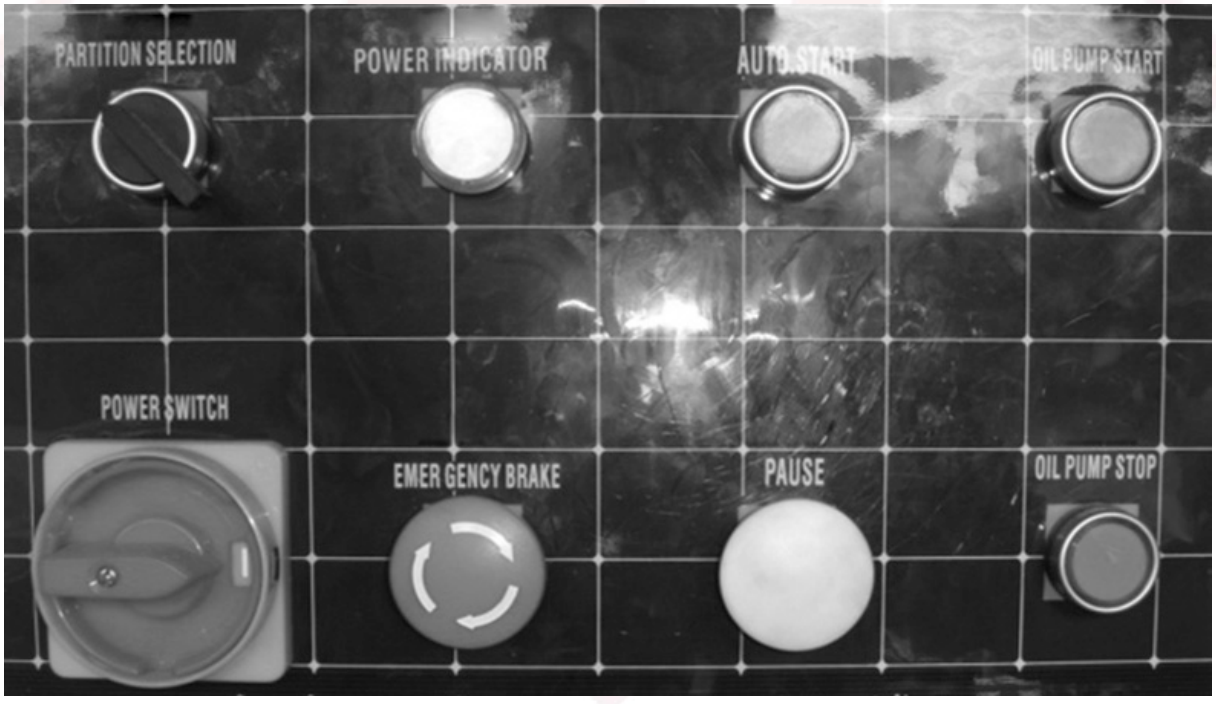
Finger shaper-station (first and second)



- Press “source” to make the machine connect power.
- When press the “auto. Run” button and the button is brighten up, the press board clamp the timber automatically and the working tables go forward. When working table get to the tip of the rail, the inducing switch installed on the pressure board receives the signal and the material-pushing board will push timber, then working tables return to the start position automatically.
- Press the “FWD TABLE” to make the working table forward.
- Press the “FEV TABLE” to make the working table back off to the start position.
- Press the “PANEL-HOLD-DOWN” to make the panel clamp the timber.
- Press the “RELEASE WORK” to make the panel release the timber.
- Press the “STOP” to make the moving parts stop.
- Press the “emergency stop” to make the whole machine to stop and disconnect from the power.

NOTE: after the power of the machine is on, only if all motor must be in stop position, the motor can start normally.

Finger jointing machine-station 3

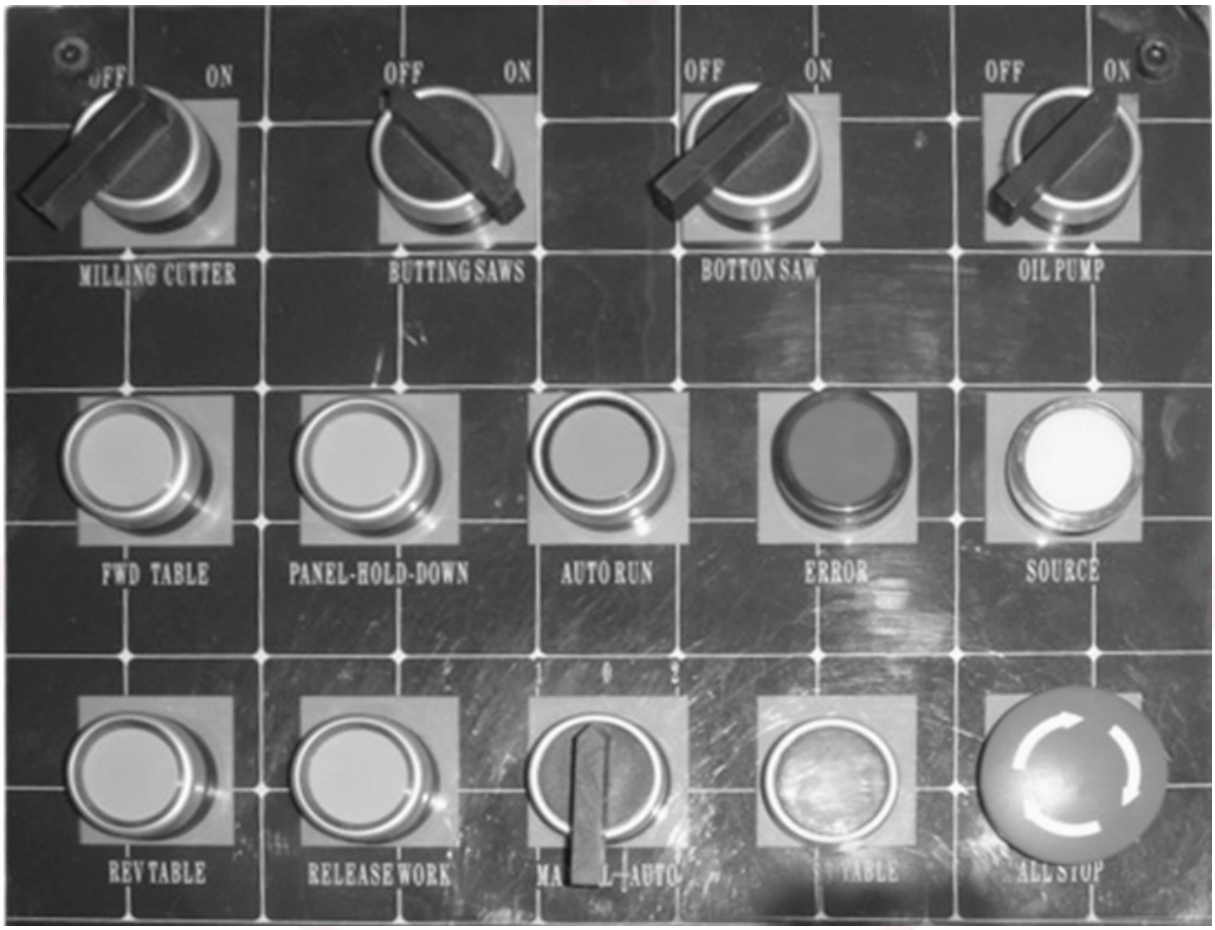


- Rotate “POWER SWITCH” button to the ON (I) position to connect the power and the “POWER INDICTOR” is brightening up.
- Press the “oil pump start” button to make oil pump start, and press the “oil pump stop” oil pump stop.
- When press the “AUTO START” button and the button is brightening up, the pressure boards clamp the timber automatically and the working table goes forward.

- Hold the "PAUSE" to make the working table stop.
- When press the emergency stop, the whole machine must stop all moving parts and disconnect with power supply.

NOTE: After the power of the machine is ON, only when all the motors must be in stop condition, the motors can start normally.

Main control panel



- Press the "SOURCE" to connect the power.
- Rotate "milling cutter" button to the ON position, cutter spindle motor start; rotate "butting saw" button to the ON position, the saw start; rotate "oil pump start" button to ON position, oil pump start.
- Press "top saw" to make top saw motor to start.
- Press "bottom saw" to make bottom scoring saw motor start.
- When press the "auto run" button and the button is brightening up, the pressure board clamps the timber automatically and working table goes forward. When working table gets to the tip of the rail, the inducing switch installed on the pressure board received the signal and the pushing board will push out the timber, their working table return to the start position automatically.
- Press the "FWD TABLE" to make the working table forward.

- Press the "FEV TABLE" to make the working table back off to the start.
- Press the "PANEL-HOLD-DOWN" to make the panel clamp the timber.
- Press the "RELESE WORK" to make the panel release the timber.
- Press the "stop" to make the moving parts stop.
- Press the "emergency stop" to make the whole machine to stop and disconnect from the power.

NOTE: After the power of the machine is on, only if all motors must be in stop position, the motor can start normally.

Emergency Stop

Emergency stop is located on following locations:

- Station 1
- Station 2
- Station 1&2
- Finger jointing assembler-station3
- Finger joint system
- Chain conveyor

Function it to cut off the power and make the machines stop.

The total numbers of emergency stop are 10 pieces.

Adjustment for the Machine/Parts

Adjustment for conveyor belt

It consists of table, rotating roller, motor, chain, conveyor belt, adjust screws etc. if conveyor belt moves towards left or right, adjust the screws at two sides of roller until the conveyor belt fixed in the middle of table..

Adjustment for hogger (butting saw)

It consists of motor, saw blade, moving drag board, lead screw, inlaid strip and screws etc. if the length of teeth of timber is too long or too short, loosen the inlaid strip screws and adjust the adjusting lead screw by hand wheel to make the drag board forward or backward accord with the requirements

The adjustment method for top scoring saw and bottom scoring saw are the same as hogger's. Mainly as long as adjust top scoring saw and bottom scoring saw to 90°to hogger.

Adjustment for cutter spindle

It consists of spindle, internal and outer sleeves, lift/lower hand wheel, locking screw, and motor, motor base, fix screw, adjusting screw etc. if the finger joints uneven for its top and bottom surfaces, loosen the locking screws of the outer sleeve and turn the lift/lower hand wheel, rise or descend the spindle until the finger joints smoothly and neatly. Then, lock the outer sleeve screw. If the belt for spindle is too loose, loosens the fix screw of motor base, adjust screws with wrench, move motor forward or backward to tense or loosen the belt. After adjustment, lock the fix screws. (When belt slides you can coat some belt glue on contact surface of it)

Adjustment for guide retainer for gantry frame

Guide retainer is close relation with the angle of the finger of timber. If any error occurs, loosen the top and bottom fix screws on guide retainer of the gantry frame, and adjust the guide retainer according to the angle error direction.

Ultra- pressure protection setting for oil pressure system

According to the pressure relay index to adjust the rated pressure close to 150kg/cm2, and then start the oil pump. In the middle of manual, press down oil pressure button, adjust pressure valve and make the oil pressure is just up to 150kg/cm2 to stop machine for protection. (it has been set to 150kg/cm2 when it is sent out of our factory)

Adjustment of cylinder pressure

During operation, the normal pressure should be 6kg/cm2～8kg/cm2, if the pressure is too low, turn the pressure-adjusting knob on air regulator until it is up to normal pressure.(The pressure has been set to 6kg/cm2 when the machine is sent out of our factory)

Adjustment for side panel-hold-down for working table

When side panel-hold-down is un-smoothly, you should adjust the rolling bearing for the working table or check the air passage whether there are some troubles for two double directional guiding valves. If yes, adjust or replacement.

Adjustment for conveyor belt

If the conveyor belt is too loose or too tense, it should adjust the screws at both sides of conveyor belt wheel.

MAINTENANCE

Everyday check of the safety system before machine start:

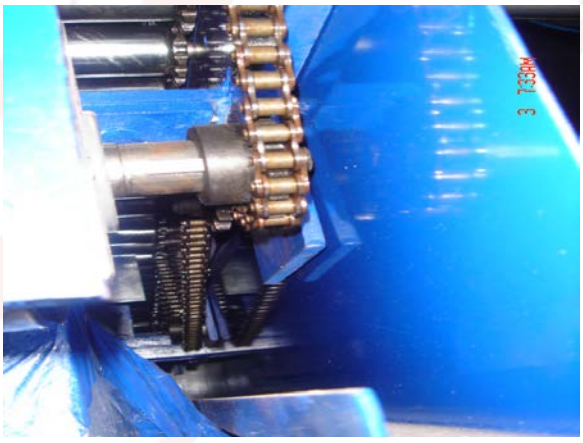
- The emergency stops are available or not.
- The joint of hydraulic does have leakage of oil or not.
- The lubricating oil of air regulators are enough or not.
- The screw of the frequently moving parts is loosened or not.
- The nuts of pneumatic cylinders are fastened or not.

Day/Week/Month/Year Maintenance

Periodic add oil	position	Method	Type
Every day	Linear guide block	Press the handle of the lubricating oil pump	Guide oil (SH/T0361-1992)
Every day	Bearing of cutter spindle	Use oil gum to make the lubricating grease inject the hole of spindle	Lubricating grease of machine tool spindle
Every day	Bearing of linear guide	Make the lubricating oil spreading the guide directly	Normal gear oil (SH/T0363-1992)
Every day	Chain, gear	Make lubricating oil spreading the gear or chair	Normal gear oil (SH/T0363-1992)

Lubrication

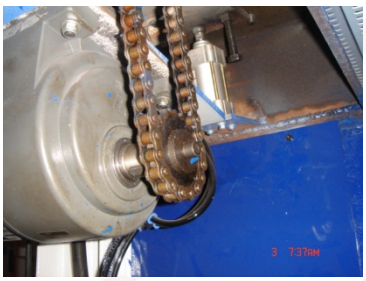
MXB3515B-A/MXB3515B-B conveyor belt



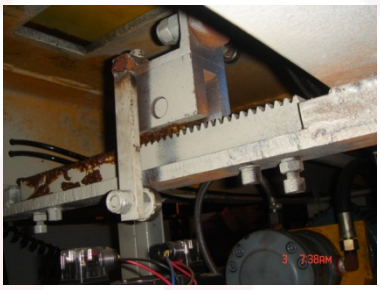
RC2X800 transmission chain

SC3000 Fluctuation wheel of feeding machine

SC3000 moving haul board



MHB1560B-C Feeding material press wheel



Side board rack

Material-pushing rack

Troubleshooting

Trouble	***Cause***	***Resolving method***
Power supply indicating lamp doesn't light up, and machine doesn't start.	1. Power supply hasn't been switch on. 2. One or more fuse FU1, FU2, FU3.FU4, FU5, FU6, FU7 has been out.	1. switch on power supply switch 2. replace the burnt fuse
Working start indicating lamp flash and machine can't be started.	1. Air pressure is insufficient. 2. Overload protection FR1～FR9 among them one or more act.	1. Increase air pressure. 2. press down reset button FR1～FR9 by hand and make the working thermal relay reset
In the mode of auto. Working, motor can be started, but it can't get into auto. Working state.	CK1 release panel check occurs shift and signal has not been checked out by CK1.	Adjust the position for CK1 and make CK1 just can check out the signal under the state of release panel(indicating lamp on CK1 lights up)

In the mode of auto. Timber can't be fed pass through C machine.	1. C machine has not entered into auto. Working start. 2. check protection without timber 3. this machine memory feed has not received the working signal from B machine " to clear"	1. Start B machine and enter into auto. Working start 2. Press down the "working start" for a long time (2 seconds) and make protective reset. 3. Press down "working start" for this machine for a long time (2 seconds) to clear.
In the mode of auto. Working, the timber can't be fed pass through C machine	F machine has not been started to work	Start F machine to work
Power supply indicating lamp (finger joint machine) lights up, but can't enter into any working mode.	1. Overload protection FR1～FR8 among them one or more act. 2. misadjust the ultra-voltage protection switch and make the check of the machine occurs error	1. Eliminate the cause of overload for motor, press down the reset button by hand, and make the protective thermal relay re set. 2. Reset ultra-voltage protection switch to 150kg/cm^2
In the mode of auto. Working, feed hold-down roller doesn't work.	1. Working start button has not been pressed down. 2. timber has been clamped and can't enter into trimming check position 3. too much oil dirt on timber and trimming photoelectric can't check out its signal 4. cylinder has not been retraced to its original position 5. reset check switch of cylinder is loose and can't check out any signal 6. rear limit switch for thrust retainer is loose, signal can't be checked out 7. Thrust retainer has been blocked and can't retrace to its original position. 8. Bottom limit switch for sawing is loose and limit signal can't be checked	1. press down working start button 2. move off clamped timber 3. After stop running, take off the timber with too much oil. 4. reset the cylinder to its original position 5. adjust the check switch position for cylinder 6. adjust the check switch position for thrust retainer 7. Clean off unusual substance and make thrust retainer retracing to its original to induced limit switch. 8. adjust sawing bottom limit switch and make it can be checked by signal 9. adjust real limit switch for side clip and make it can be checked by signal

	out. 9. rear limit switch for side panel-hold-down is loose and signal can't be checked out	
Jointed timber can't be thrust out by cylinder	1. Oil pump has not been started. 2. oil pressure is too low	Start the oil pump. Adjust oil pressure to a higher value.
Once cylinder hold-down the timber and machine stop running automatically immediately	1. Oil pressure is too high 2. misadjust extra-pressure protection switch for oil pressure system and machine protect ahead of time reaching finger joint pressure	1. adjust oil pressure to a lower value 2. re-adjust extra-pressure protection switch 150kg /cm^2

ELECTRIC

Safety rules for electrical control system

Only operator who are properly trained and have adequate knowledge and skill should undertake all electrical. Electronic troubles shooting and repair.

Do not alter or bypass protective interlocks

Before operate this line, operators must read and observe all warning labels.

When trouble shooting, make sure the power source has been disconnected and main switches have been locked.

Take extra precautions in damp areas to protect you from accidental grounding.

Before switch on power supply for any unit of machines for this line, the machine must be fixed steadily on ground. Make sure there are no other people near the machine.

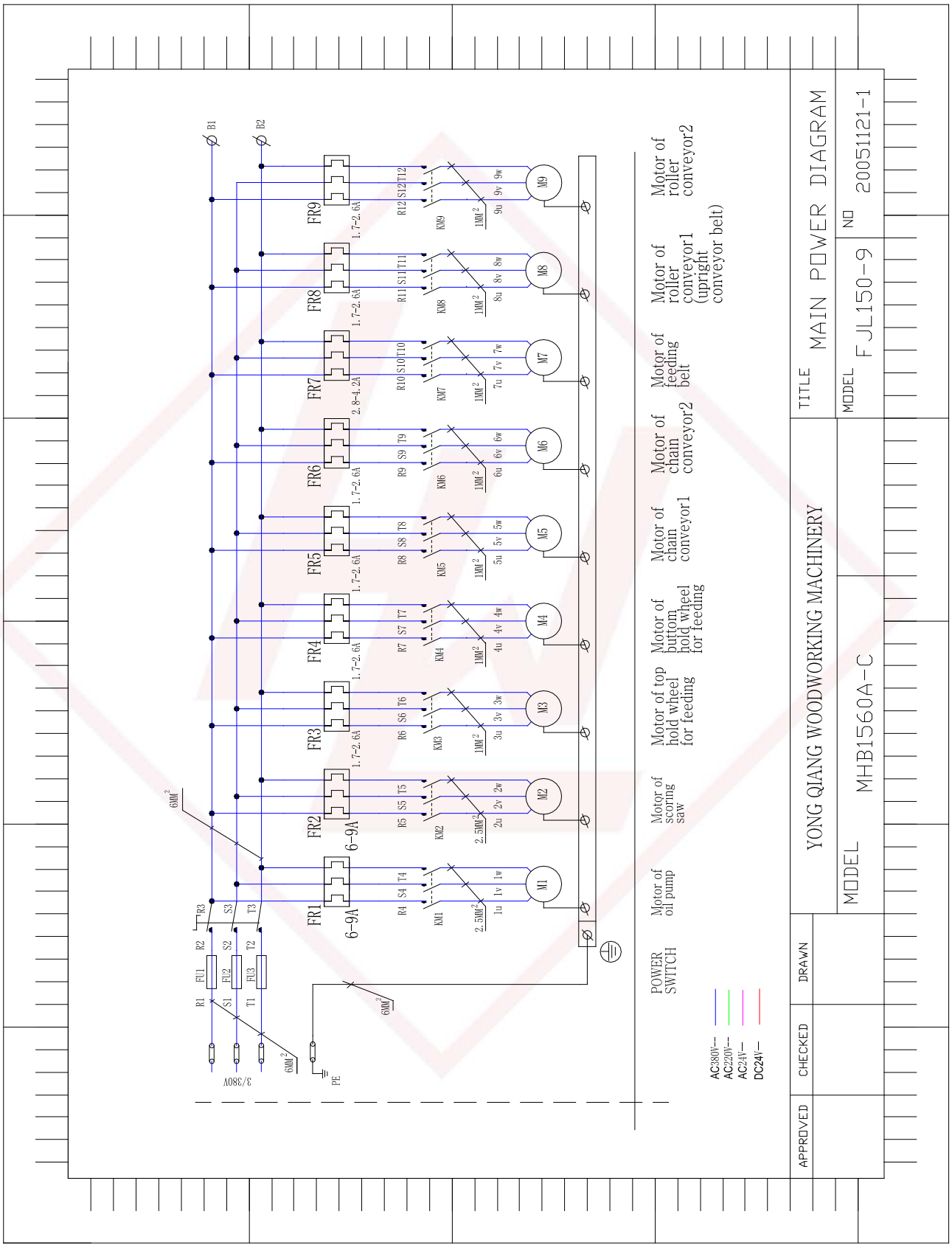
Do not open the electrical control panel unless it is necessary to check the electrical equipment.

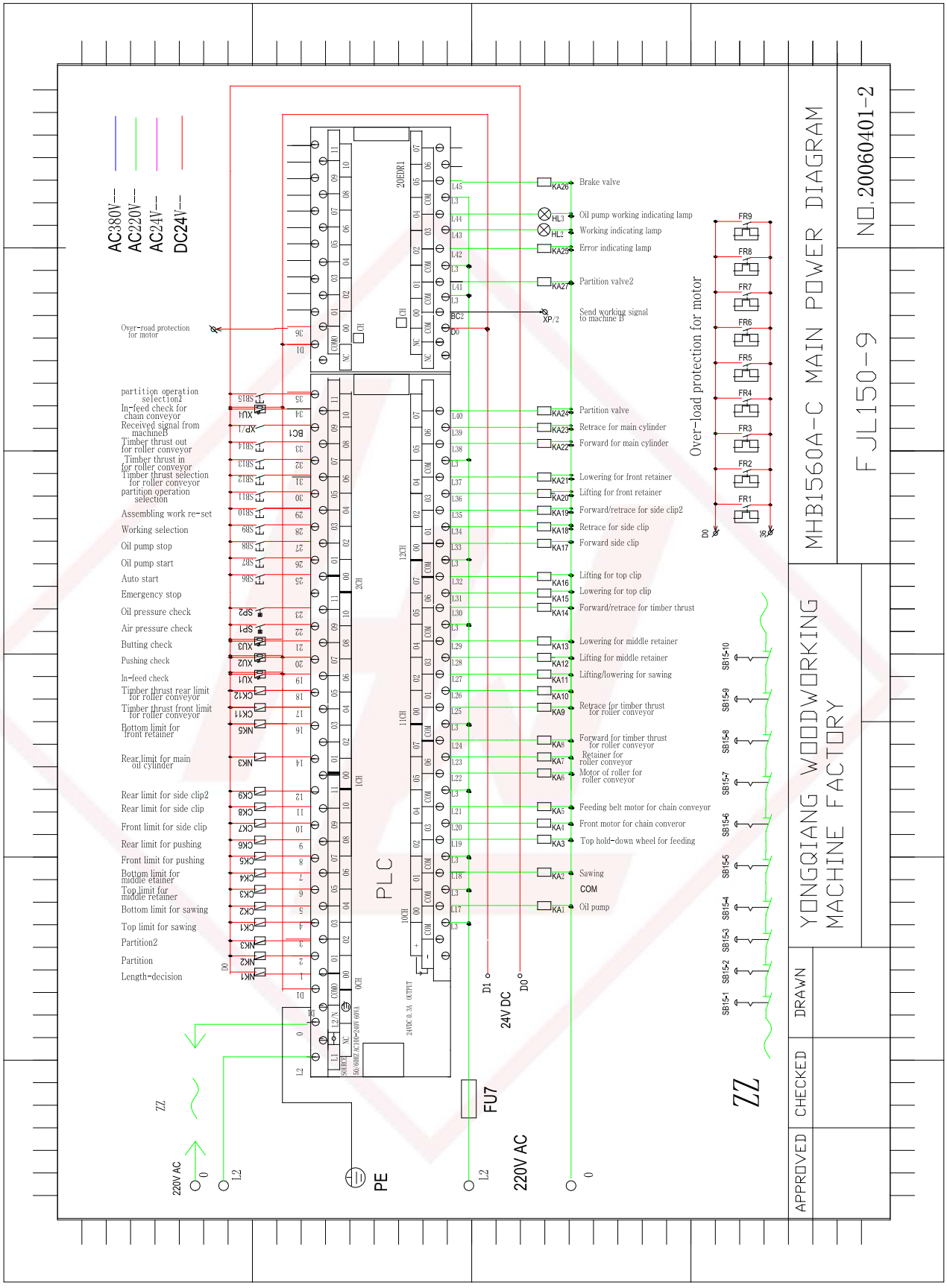
It's not permitted to alter the electrical circuits without authorized by the manufacture.

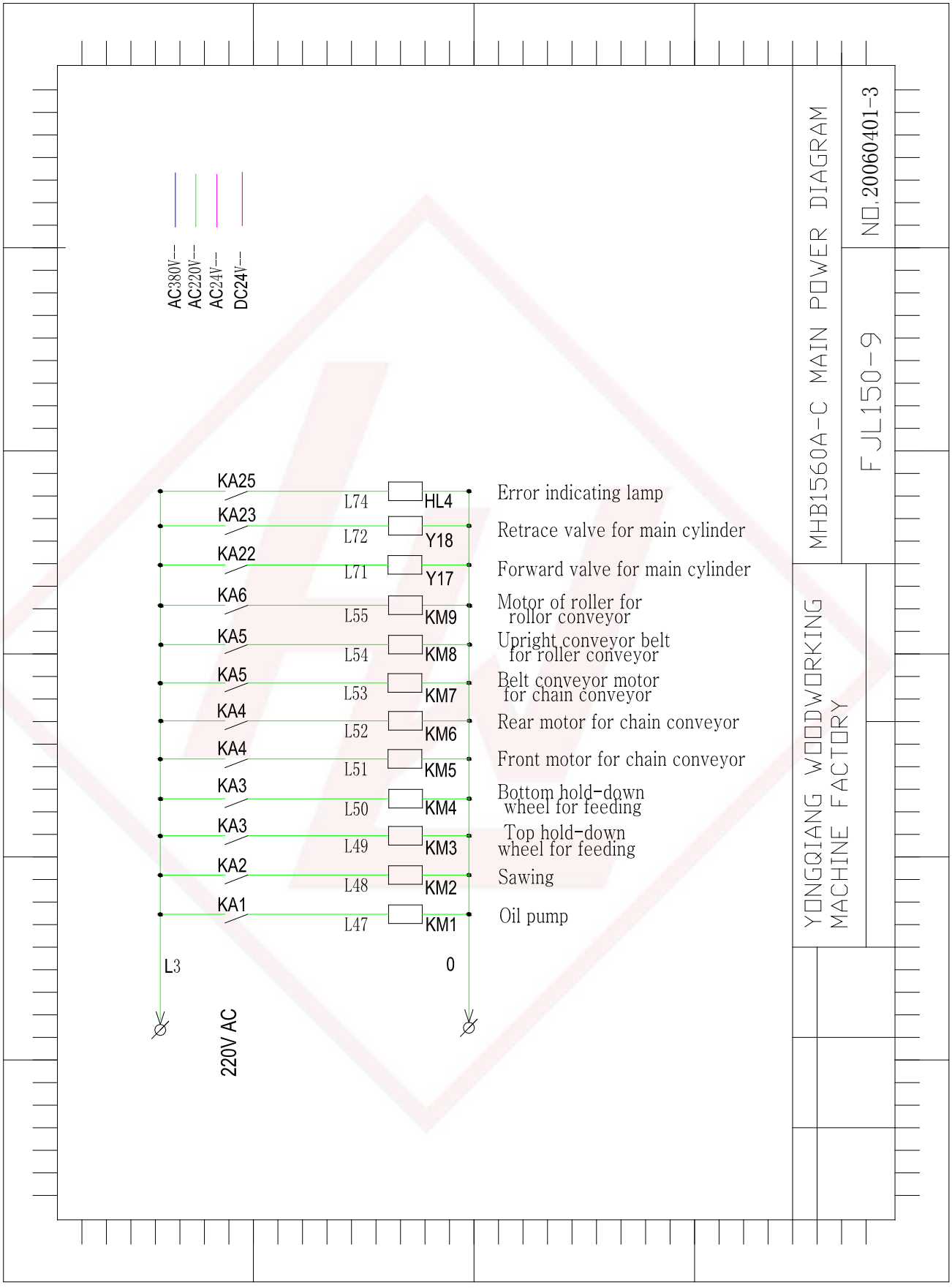
When replacing electrical components, make sure they conform to the manufacture's specifications, including proper colour coding.

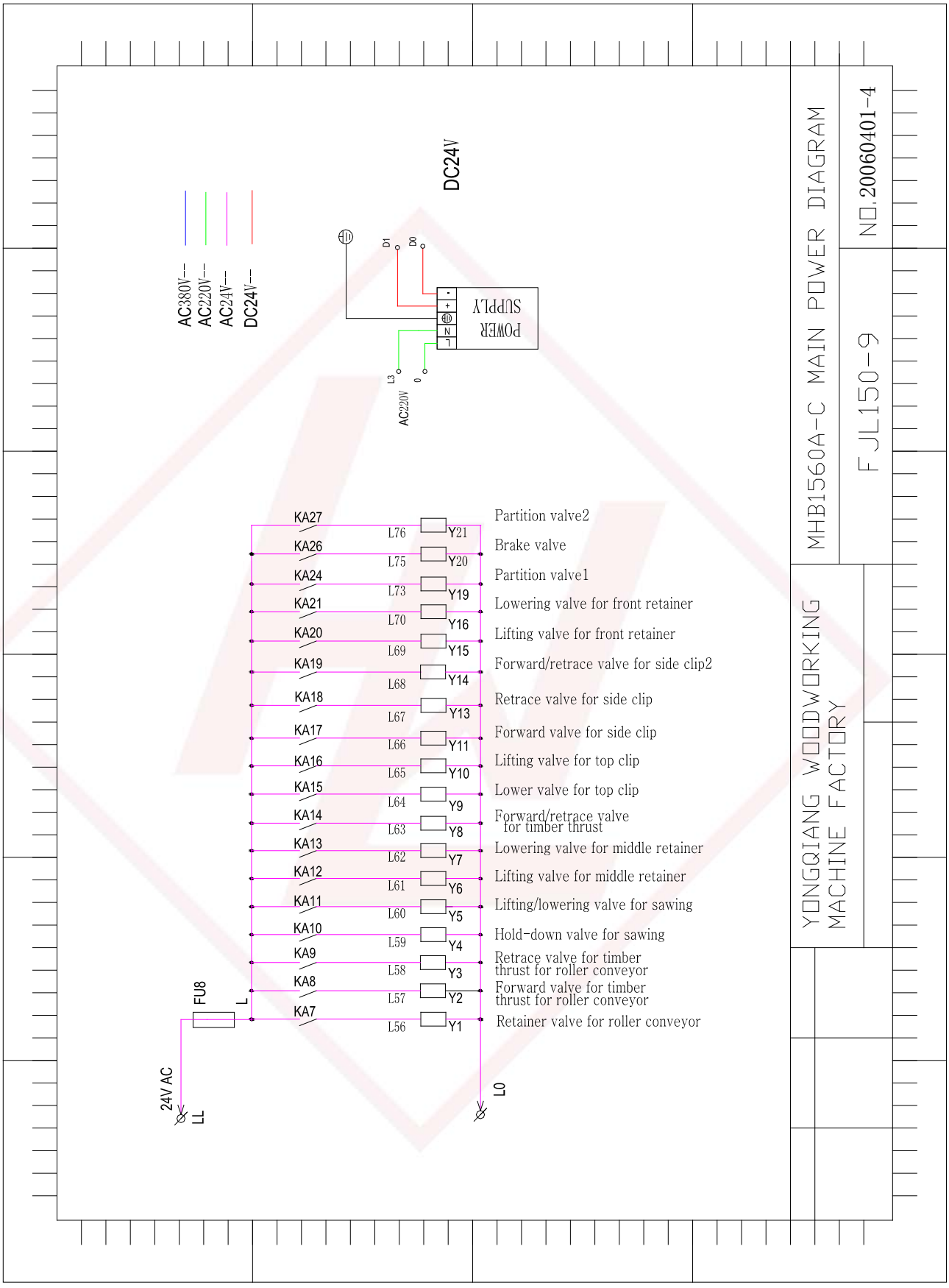
Do not wear metal frame glasses, metallic necklaces or chains while working on any electrical equipment. Also do not wear any ring, watch or bracelet while operating electrical equipment.

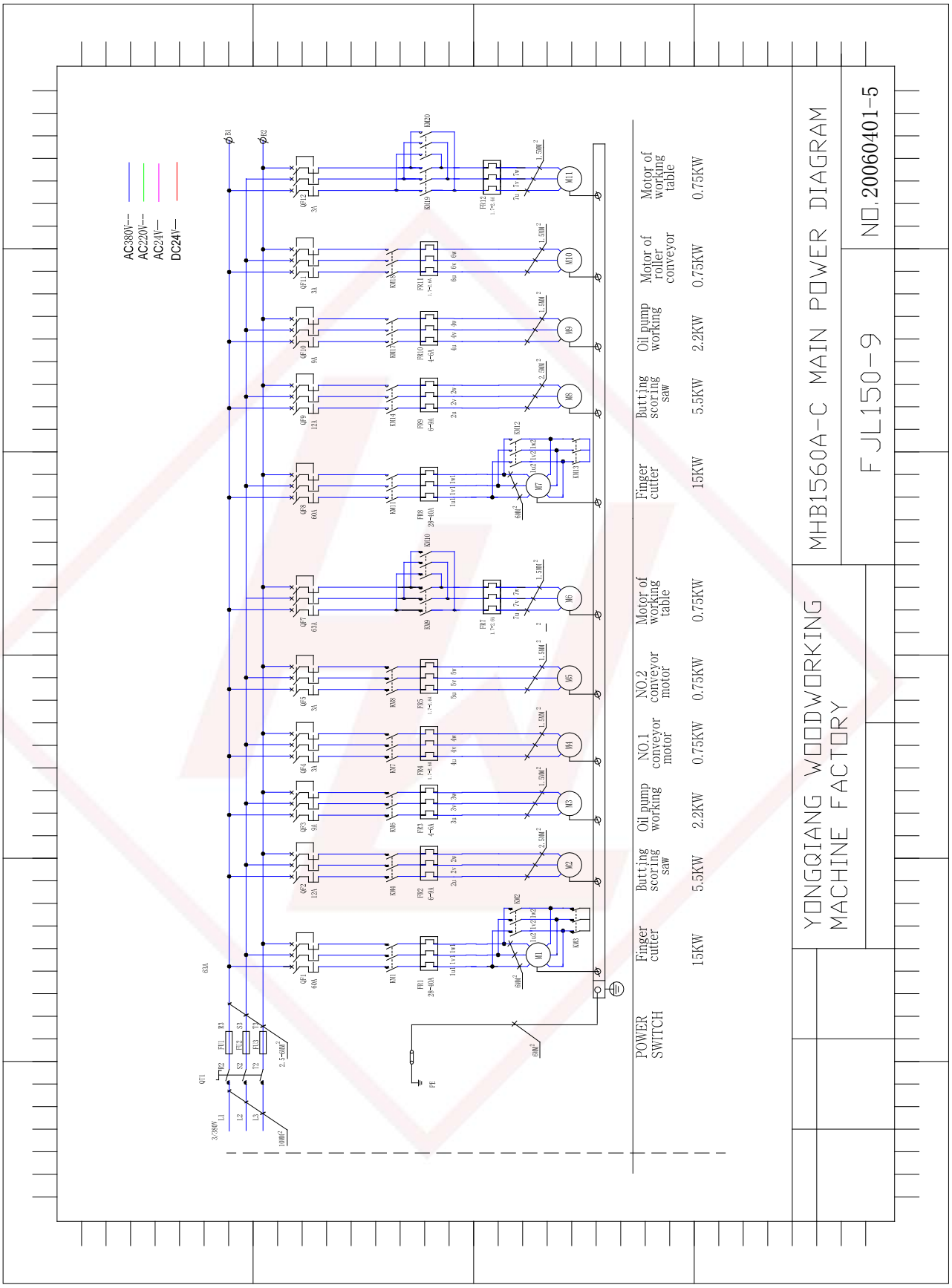
Electrical Plan

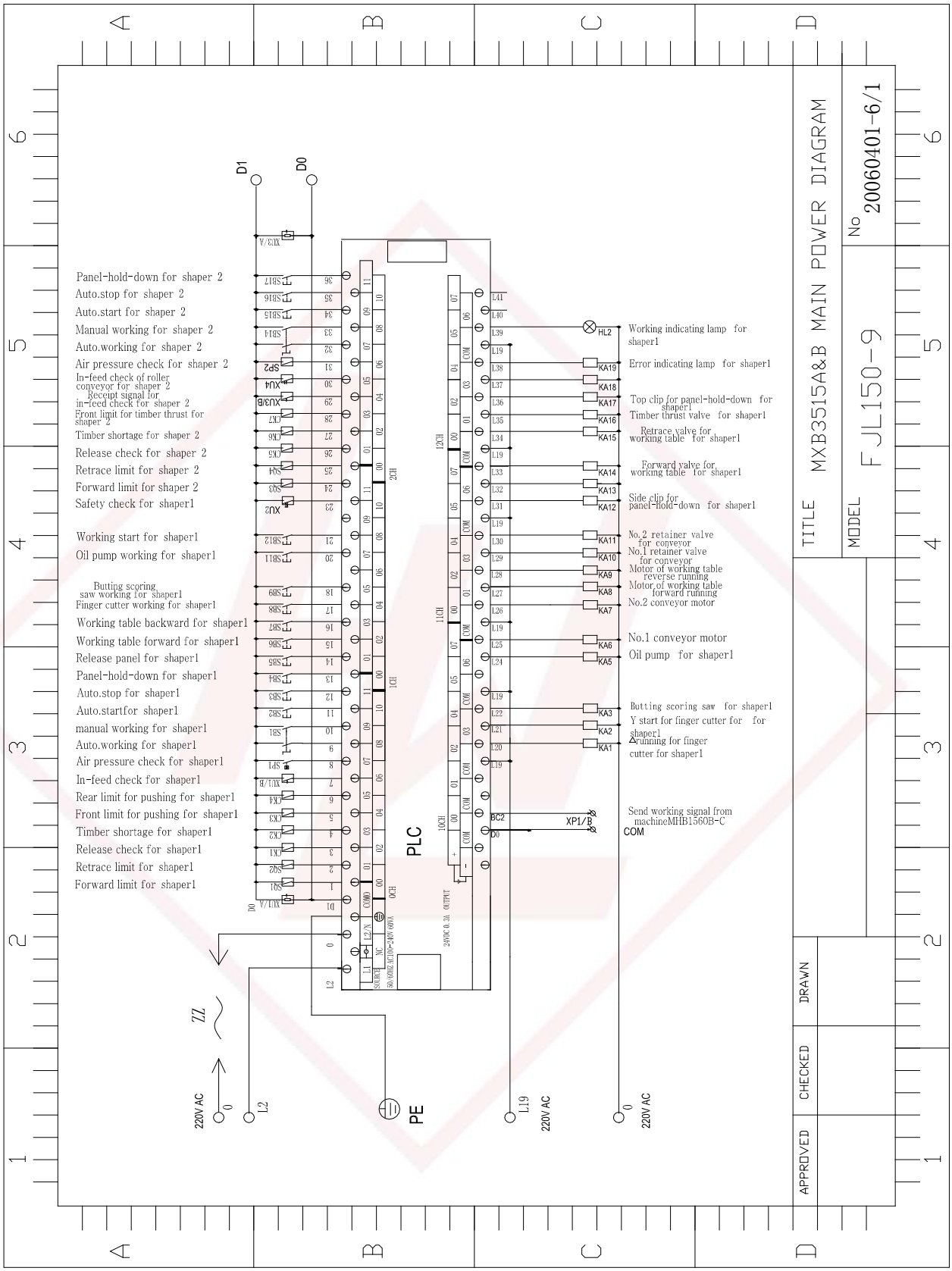


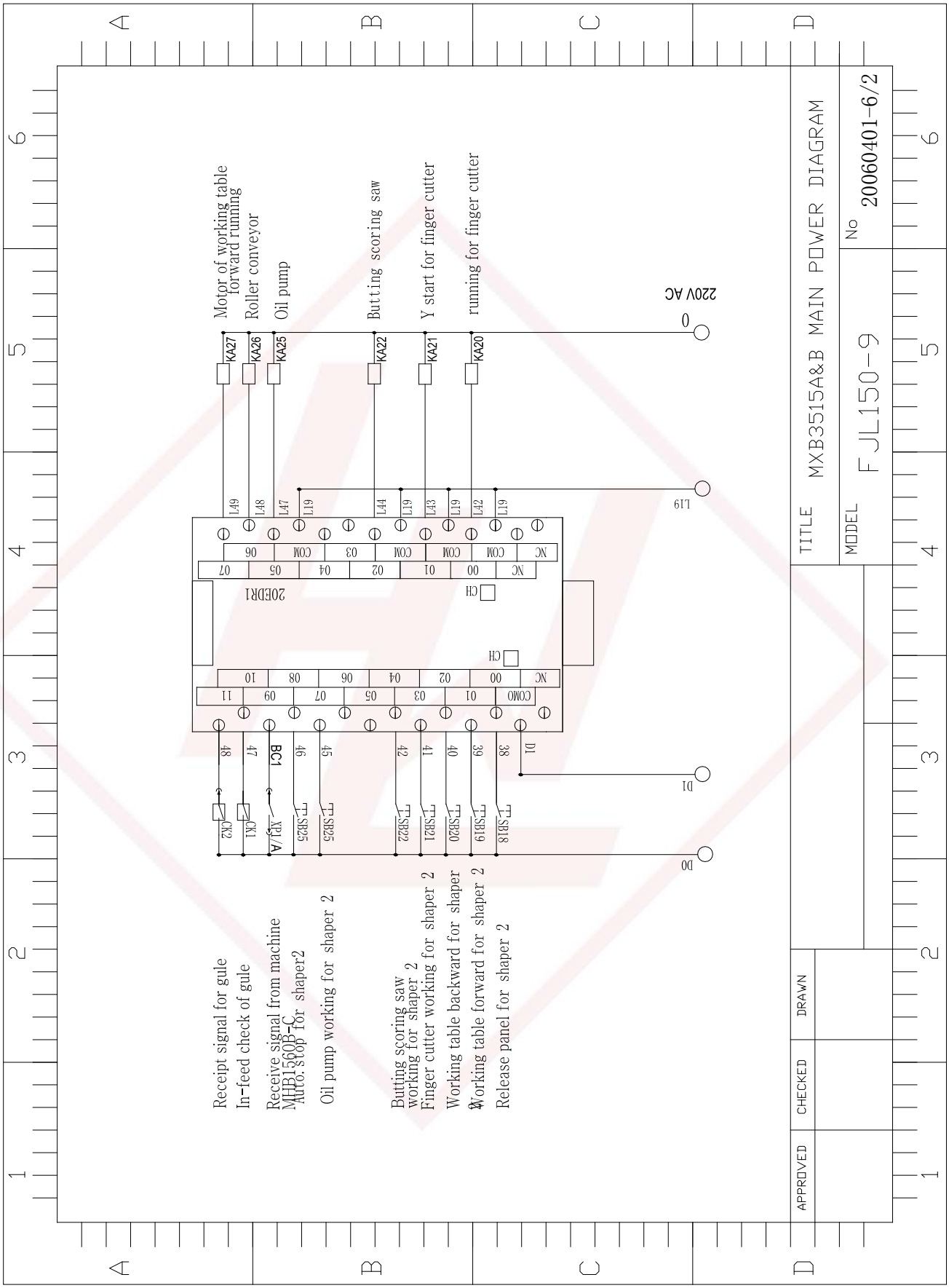

MHB1560A-C MAIN POWER DIAGRAM
FJL150-9
NO.20060401-2
YONGQIANG WOODWORKING MACHINE FACTORY
APPROVED
CHECKED
DRAWN
AC380V
AC220V
AC24V
DC24V
PLC
20EDR1
12CH
11CH
10CH
2CH
1CH
0CH
Over-road protection for motor
partition operation selection2
In-feed check for chain conveyor
Received signal from machineB
Timber thrust out for roller conveyor
Timber thrust in for roller conveyor
Timber thrust selection for roller conveyor
partition operation selection
Assembling work re-set
Working selection
Oil pump stop
Oil pump start
Auto start
Emergency stop
Oil pressure check
Air pressure check
Butting check
Pushing check
In-feed check
Timber thrust rear limit for roller conveyor
Timber thrust front limit for roller conveyor
Bottom limit for front retainer
Rear limit for main oil cylinder
Rear limit for side clip2
Rear limit for side clip
Front limit for side clip
Rear limit for pushing
Front limit for pushing
Bottom limit for middle etainer
Top limit for middle retainer
Bottom limit for sawing
Top limit for sawing
Partition2
Partition
Length-decision
Brake valve
Oil pump working indicating lamp
Working indicating lamp
Error indicating lamp
Partition valve2
Send working signal to machine B
Partition valve
Retrace for main cylinder
Forward for main cylinder
Lowering for front retainer
Lifting for front retainer
Forward/retrace for side clip2
Retrace for side clip
Forward side clip
Lifting for top clip
Lowering for top clip
Forward/retrace for timber thrust
Lowering for middle retainer
Lifting for middle retainer
Lifting/lowering for sawing
Retrace for timber thrust for roller conveyor
Forward for timber thrust for roller conveyor
Retainer for roller conveyor
Motor of roller for roller conveyor
Feeding belt motor for chain conveyor
Front motor for chain converor
Top hold-down wheel for feeding
Sawing
COM
Oil pump
Over-load protection for motor
24V DC
220V AC
PE
FU7

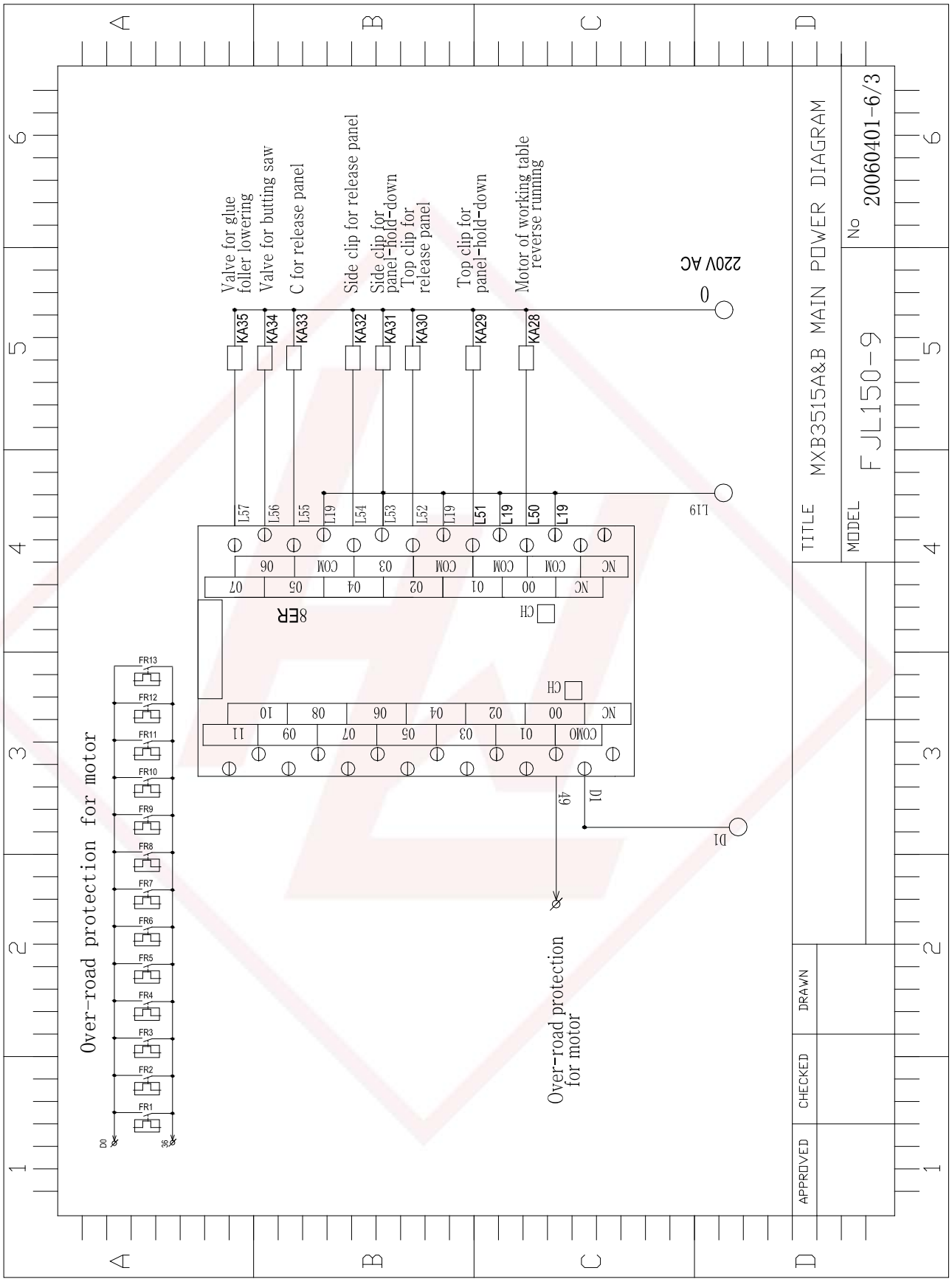

AC380V~
AC220V~
AC24V~
DC24V~
KA25
KA23
KA22
KA6
KA5
KA5
KA4
KA4
KA3
KA3
KA2
KA1
L74
L72
L71
L55
L54
L53
L52
L51
L50
L49
L48
L47
HL4
Y18
Y17
KM9
KM8
KM7
KM6
KM5
KM4
KM3
KM2
KM1
Error indicating lamp
Retrace valve for main cylinder
Forward valve for main cylinder
Motor of roller for rollor conveyor
Upright conveyor belt for roller conveyor
Belt conveyor motor for chain conveyor
Rear motor for chain conveyor
Front motor for chain conveyor
Bottom hold-down wheel for feeding
Top hold-down wheel for feeding
Sawing
Oil pump
L3
0
220V AC
MHB1560A-C MAIN POWER DIAGRAM
FJL150-9
NO.20060401-3
YONGQIANG WOODWORKING MACHINE FACTORY

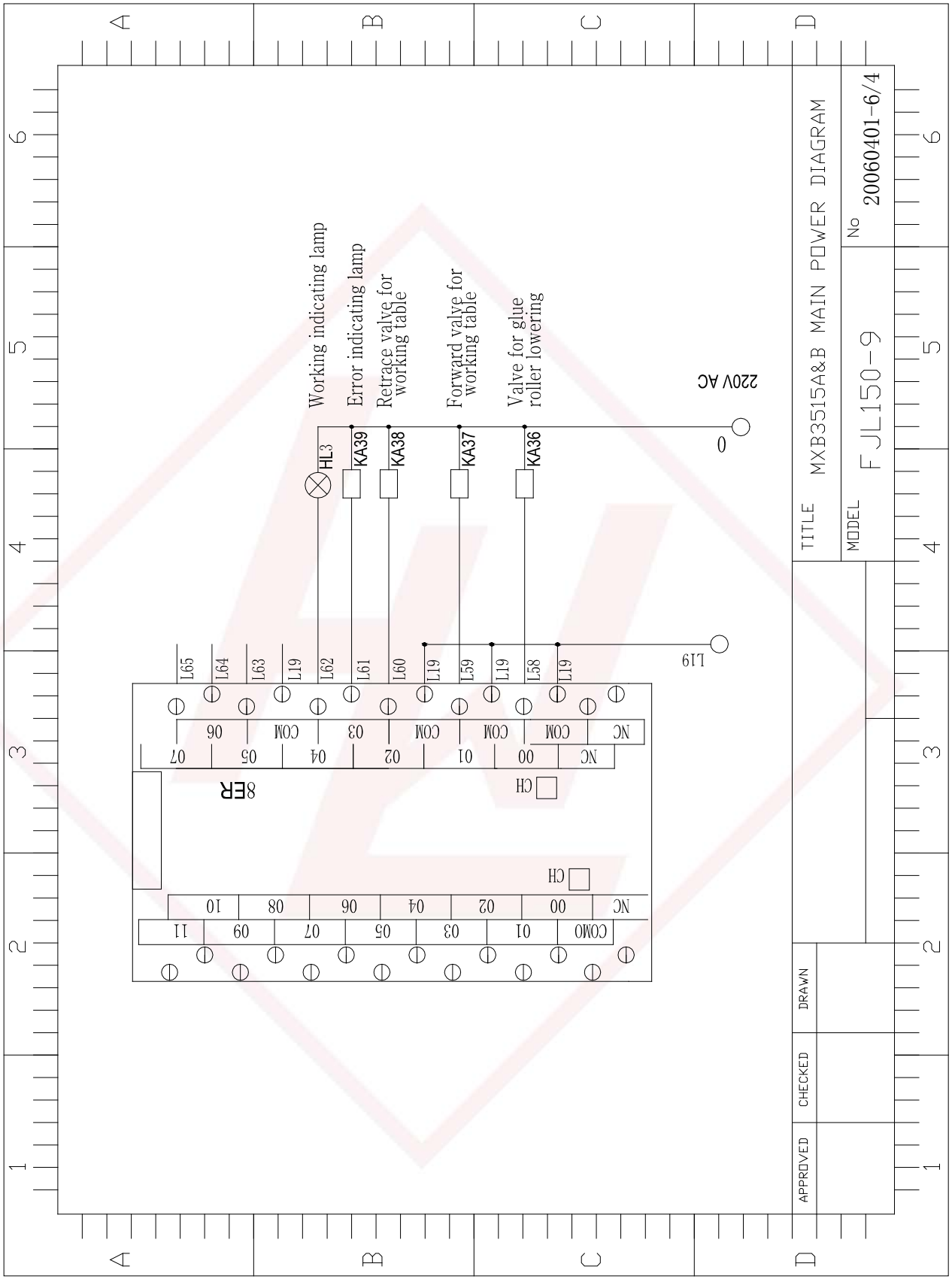

DC24V
AC380V
AC220V
AC24V
DC24V
D1
D0
POWER SUPPLY
L3
0
AC220V
KA27
KA26
KA24
KA21
KA20
KA19
KA18
KA17
KA16
KA15
KA14
KA13
KA12
KA11
KA10
KA9
KA8
KA7
L76
L75
L73
L70
L69
L68
L67
L66
L65
L64
L63
L62
L61
L60
L59
L58
L57
L56
Y21
Y20
Y19
Y16
Y15
Y14
Y13
Y11
Y10
Y9
Y8
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Partition valve2
Brake valve
Partition valve1
Lowering valve for front retainer
Lifting valve for front retainer
Forward/retrace valve for side clip2
Retrace valve for side clip
Forward valve for side clip
Lifting valve for top clip
Lower valve for top clip
Forward/retrace valve for timber thrust
Lowering valve for middle retainer
Lifting valve for middle retainer
Lifting/lowering valve for sawing
Hold-down valve for sawing
Retrace valve for timber thrust for roller conveyor
Forward valve for timber thrust for roller conveyor
Retainer valve for roller conveyor
FU8
L
24V AC
LL
L0
YONGQIANG WOODWORKING MACHINE FACTORY
MHB1560A-C MAIN POWER DIAGRAM
FJL150-9
NO.20060401-4

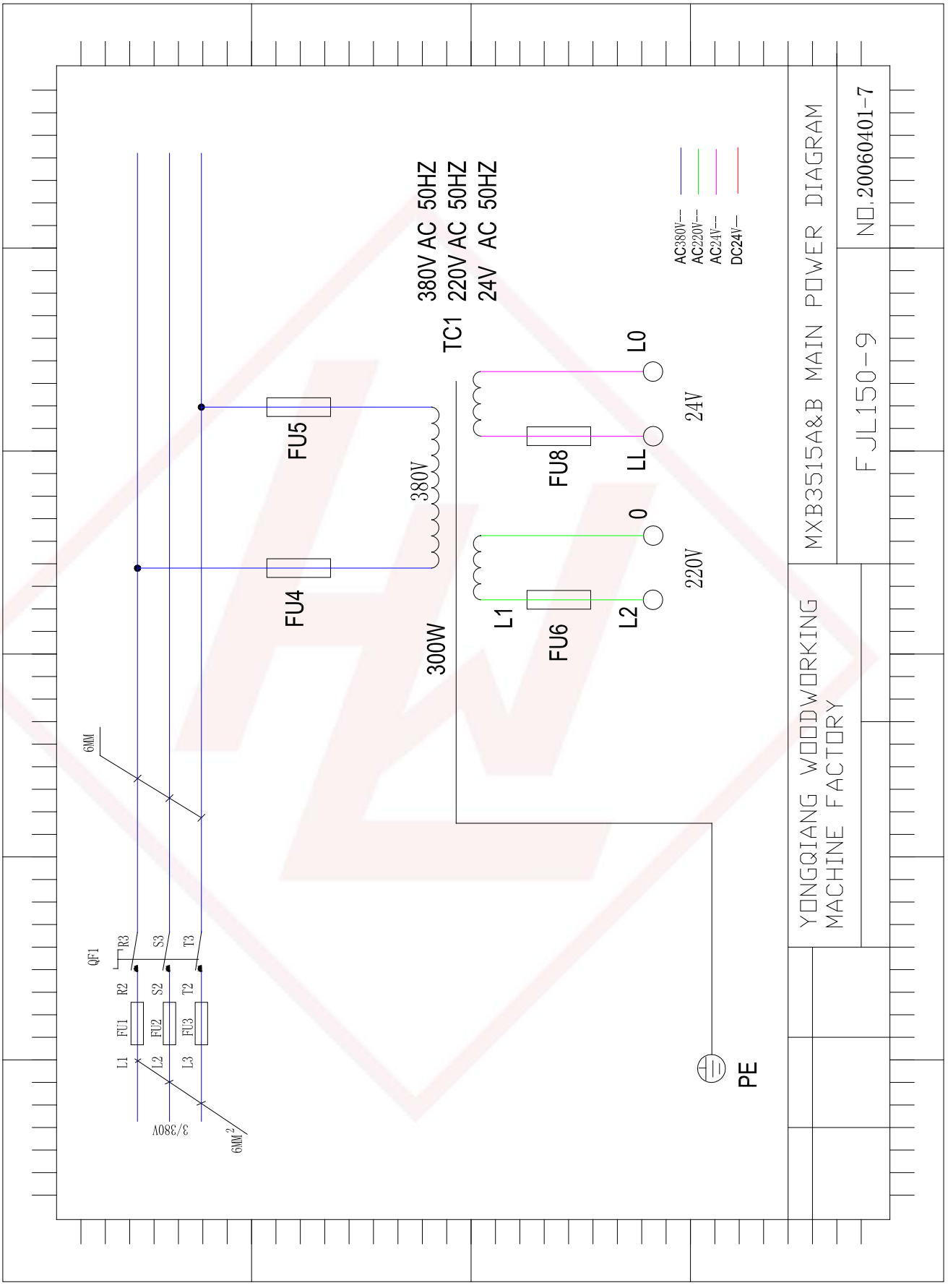

MHB1560A-C MAIN POWER DIAGRAM
FJL150-9
NO.20060401-5
YONGQIANG WOODWORKING
MACHINE FACTORY
AC380V
AC220V
AC24V
DC24V
POWER SWITCH
Finger cutter
15KW
Butting scoring saw
5.5KW
Oil pump working
2.2KW
NO.1 conveyor motor
0.75KW
NO.2 conveyor motor
0.75KW
Motor of working table
0.75KW
Finger cutter
15KW
Butting scoring saw
5.5KW
Oil pump working
2.2KW
Motor of roller conveyor
0.75KW
Motor of working table
0.75KW

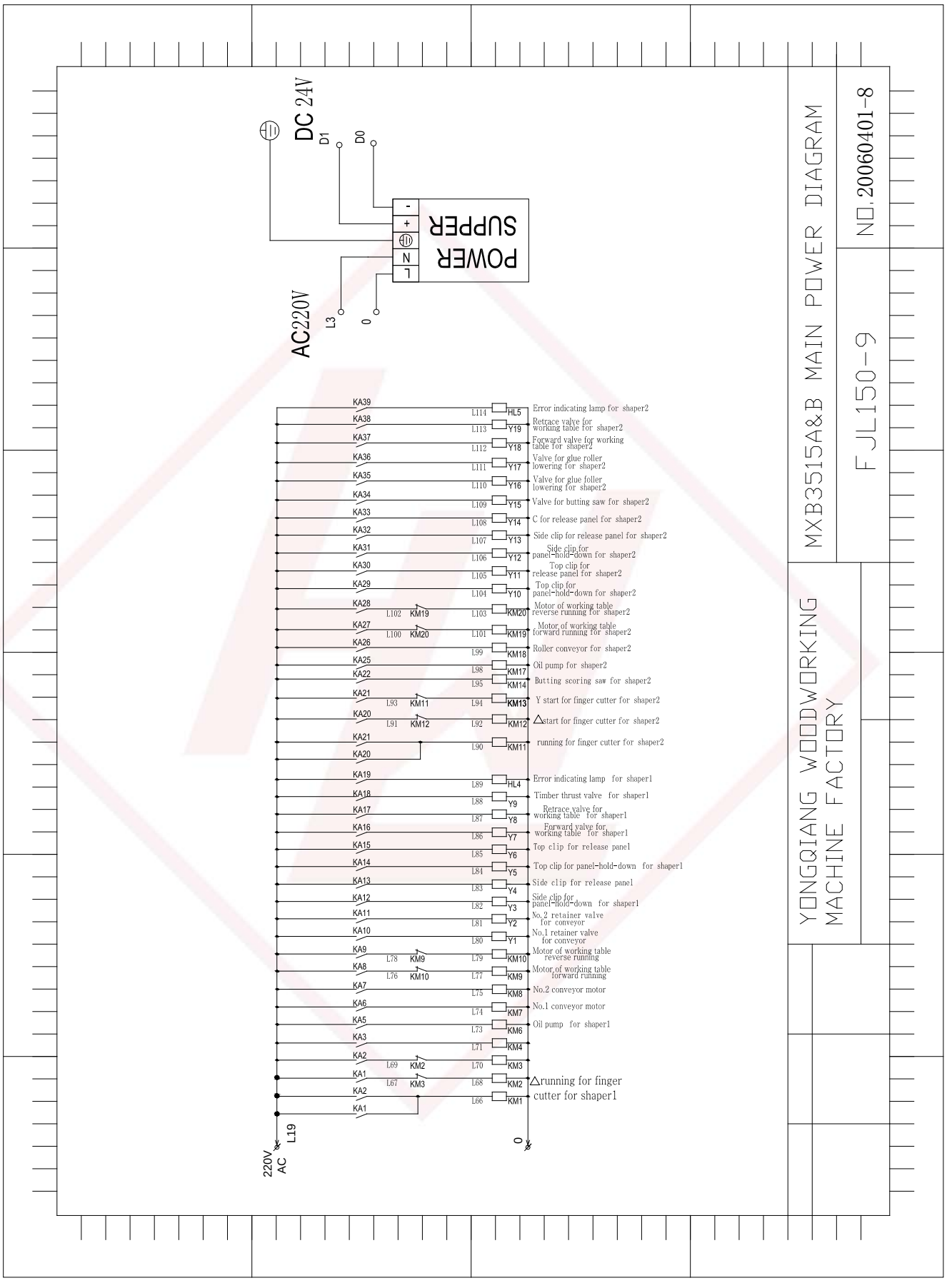

TITLE MXB3515A&B MAIN POWER DIAGRAM
MODEL FJL150-9
No 20060401-6/1
APPROVED
CHECKED
DRAWN
PLC
PE
220V AC
Panel-hold-down for shaper 2
Auto.stop for shaper 2
Auto.start for shaper 2
Manual working for shaper 2
Auto.working for shaper 2
Air pressure check for shaper 2
In-feed check of roller conveyor for shaper 2
Receipt signal for in-feed check for shaper 2
Front limit for timber thrust for shaper 2
Timber shortage for shaper 2
Release check for shaper 2
Retrace limit for shaper 2
Forward limit for shaper 2
Safety check for shaper1
Working start for shaper1
Oil pump working for shaper1
Butting scoring saw working for shaper1
Finger cutter working for shaper1
Working table backward for shaper1
Working table forward for shaper1
Release panel for shaper1
Panel-hold-down for shaper1
Auto.stop for shaper1
Auto.startfor shaper1
manual working for shaper1
Auto.working for shaper1
Air pressure check for shaper1
In-feed check for shaper1
Rear limit for pushing for shaper1
Front limit for pushing for shaper1
Timber shortage for shaper1
Release check for shaper1
Retrace limit for shaper1
Forward limit for shaper1
Working indicating lamp for shaper1
Error indicating lamp for shaper1
Top clip for panel-hold-down for shaper1
Timber thrust valve for shaper1
Retrace valve for working table for shaper1
Forward valve for working table for shaper1
Side clip for panel-hold-down for shaper1
No.2 retainer valve for conveyor
No.1 retainer valve for conveyor
Motor of working table reverse running
Motor of working table forward running
No.2 conveyor motor
No.1 conveyor motor
Oil pump for shaper1
Butting scoring saw for shaper1
Y start for finger cutter for for shaper1
△running for finger cutter for shaper1
Send working signal from machineMHB1560B-C
COM


TITLE MXB3515A&B MAIN POWER DIAGRAM
MODEL FJL150-9
No 20060401-6/2
APPROVED
CHECKED
DRAWN
220V AC
0
Motor of working table forward running
Roller conveyor
Oil pump
Butting scoring saw
Y start for finger cutter
running for finger cutter
KA27
KA26
KA25
KA22
KA21
KA20
L19
L49
L48
L47
L44
L43
L42
20EDR1
CH
NC
COM
00
01
02
03
04
05
06
07
10
09
08
11
COM0
D1
D0
BG1
XP1/A
CX2
CX1
SB25
SB26
SB22
SB21
SB20
SB19
SB18
48
47
46
45
42
41
40
39
38
Receipt signal for gule
In-feed check of gule
Receive signal from machine MHB1560B-C Auto.stop for shaper2
Oil pump working for shaper 2
Butting scoring saw working for shaper 2
Finger cutter working for shaper 2
Working table backward for shaper 2
Working table forward for shaper 2
Release panel for shaper 2


TITLE MXB3515A&B MAIN POWER DIAGRAM
MODEL FJL150-9
No 20060401-6/3
APPROVED
CHECKED
DRAWN
220V AC
Valve for glue foller lowering
Valve for butting saw
C for release panel
Side clip for release panel
Side clip for panel-hold-down
Top clip for release panel
Top clip for panel-hold-down
Motor of working table reverse running
KA35
KA34
KA33
KA32
KA31
KA30
KA29
KA28
8ER
Over-road protection for motor
Over-road protection for motor
FR13
FR12
FR11
FR10
FR9
FR8
FR7
FR6
FR5
FR4
FR3
FR2
FR1


Working indicating lamp
Error indicating lamp
Retrace valve for working table
Forward valve for working table
Valve for glue roller lowering
220V AC
0
HL3
KA39
KA38
KA37
KA36
L19
L65
L64
L63
L62
L61
L60
L59
L58
8ER
CH
NC
COM
00
01
02
03
04
05
06
07
COM0
08
09
10
11
TITLE
MXB3515A&B MAIN POWER DIAGRAM
MODEL
FJL150-9
No
20060401-6/4
DRAWN
CHECKED
APPROVED


MXB3515A&B MAIN POWER DIAGRAM
FJL150-9
NO.20060401-7
YONGQIANG WOODWORKING MACHINE FACTORY
380V AC 50HZ
220V AC 50HZ
24V AC 50HZ
TC1
AC380V
AC220V
AC24V
DC24V
FU5
FU4
380V
300W
FU8
FU6
L0
LL
0
L1
L2
24V
220V
PE
QF1
R3
S3
T3
R2
S2
T2
FU1
FU2
FU3
L1
L2
L3
6MM
3/380V
6MM2


DC 24V
D1
D0
POWER SUPPER
-
+
N
L
AC220V
L3
0
KA39
KA38
KA37
KA36
KA35
KA34
KA33
KA32
KA31
KA30
KA29
KA28
KA27
KA26
KA25
KA22
KA21
KA20
KA21
KA20
KA19
KA18
KA17
KA16
KA15
KA14
KA13
KA12
KA11
KA10
KA9
KA8
KA7
KA6
KA5
KA3
KA2
KA1
KA2
KA1
L102 KM19
L100 KM20
L93 KM11
L91 KM12
L78 KM9
L76 KM10
L69 KM2
L67 KM3
L114 HL5 Error indicating lamp for shaper2
L113 Y19 Retrace valve for working table for shaper2
L112 Y18 Forward valve for working table for shaper2
L111 Y17 Valve for glue roller towering for shaper2
L110 Y16 Valve for glue foller towering for shaper2
L109 Y15 Valve for butting saw for shaper2
L108 Y14 C for release panel for shaper2
L107 Y13 Side clip for release panel for shaper2
L106 Y12 Side clip for panel-hold-down for shaper2
L105 Y11 Top clip for release panel for shaper2
L104 Y10 Top clip for panel-hold-down for shaper2
L103 KM20 Motor of working table reverse running for shaper2
L101 KM19 Motor of working table forward running for shaper2
L99 KM18 Roller conveyor for shaper2
L98 KM17 Oil pump for shaper2
L95 KM14 Butting scoring saw for shaper2
L94 KM13 Y start for finger cutter for shaper2
L92 KM12 △start for finger cutter for shaper2
L90 KM11 running for finger cutter for shaper2
L89 HL4 Error indicating lamp for shaper1
L88 Y9 Timber thrust valve for shaper1
L87 Y8 Retrace valve for working table for shaper1
L86 Y7 Forward valve for working table for shaper1
L85 Y6 Top clip for release panel
L84 Y5 Top clip for panel-hold-down for shaper1
L83 Y4 Side clip for release panel
L82 Y3 Side clip for panel-hold-down for shaper1
L81 Y2 No.2 retainer valve for conveyor
L80 Y1 No.1 retainer valve for conveyor
L79 KM10 Motor of working table reverse running
L77 KM9 Motor of working table forward running
L75 KM8 No.2 conveyor motor
L74 KM7 No.1 conveyor motor
L73 KM6 Oil pump for shaper1
L71 KM4
L70 KM3
L68 KM2 △running for finger cutter for shaper1
L66 KM1
220V AC
L19
0
MXB3515A&B MAIN POWER DIAGRAM
NO.20060401-8
FJL150-9
YONGQIANG WOODWORKING MACHINE FACTORY

Electrical Part List

SN	SYNBOL	NAME	MAKER	SPECIFICATION	STANDARD	APP
1	PPS1	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN80947-4-1	CE
2	PPS2	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃TO DC 70℃	EN80947-4-1	CE
3	PPS3	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN80947-4-1	CE
4	KM1	REED SWITCH	NORGEN	M150/LSU/2V 0.18A AC24 10W -20℃ T0 80℃	EN80947-4-1	CE
5	KM2-9	REED SWITCH	NORGEN	M150/LSU/2V 0.18A AC24 10W -20℃ T0 80℃	EN80947-4-1	CE
6	PRS4	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN80947-4-1	CE
7	PRS5	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN80947-4-1	CE
8	PHS1	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC10-30 -25℃ TO 55℃	EN80947-4-1	CE
9	PHS2	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC10-30 -25℃ TO 55℃	EN80947-4-1	CE
10	PHS3	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC10-30 -25℃ TO 55℃	EN80947-4-1	CE
11	SP1	PRESSURE SWITCH	SMC	IS3000-02 4A 30V DC	EN80947-4-1	CE
12	SB6	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN80947-4-1	CE
13	SB7	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
14	SB8	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
15	SB9	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
16	SB10	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
17	SB11	SELECTOR SWITCH	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
18	PHS4	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC10-30 -25℃ TO 55℃	EN60947-5-1	CE
19	SB15	SELECTOR SWITCH	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
20	SB16				EN60947-5-1	CE

SN	SYNBOL	NAME	MAKER	SPECIFICATION	STANDARD	APP
1	KA1-6	REED RELAY	IDCC	RY4S-U 5A 240V AC	IE255	CE
2	KA7-21	REED RELAY	IDCC	RY4S-U 5A 240V AC	IE255	CE
3	KA22-23	REED RELAY	IDCC	RY4S-U 5A 240V AC	IE255	CE
4	KA24	REED RELAY	IDCC	RY4S-U 5A 240V AC	IE255	CE
5	KA25	REED RELAY	IDCC	RY4S-U 5A 240V AC	IE255	CE
6	KA26-27	REED RELAY	FUJI	RY4S-U 5A 240V AC	IE255	CE
7	KM1	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-4-1	CE
8	KM2	MAGNETIC	FUJI	SC-03 20A 380V AC 4KW	EN60947-4-1	CE
9	KM3	MAGNETIC	FUJI		EN60947-4-1	CE
10	KM4	MAGNETIC	FUJI	SC-03 20A 380V AC 4KW	EN60947-4-1	CE
11	KM5	MAGNETIC	FUJI	SC-03 20A 380V AC 4KW	EN60947-4-1	CE
12	KM6	MAGNETIC	FUJI	SC-03 20A 380V AC 4KW	EN60947-4-1	CE
13	KM7	MAGNETIC	FUJI	SC-03 20A 380V AC 4KW	EN60947-4-1	CE
14	YV4	VALVE	NORGEN	V61B513A-A2 10-24V -20℃ TO 80℃ AC 10W	EN12266-2	CE
15	YV5	VALVE	NORGEN	V61B513A-A2 10-24V -20℃ TO 80℃ AC 10W	EN12266-2	CE
16	YV6	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
17	YV7	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
18	YV8	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
19	YV9	VALVE	NORGEN	V62B511A-A3194 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
20	YV10	VALVE	NORGEN	V62B511A-A3194 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE

SN	SYNBOL	NAME	MAKER	SPECIFICATION	STANDARD	APP
1	YV11	VALVE	NORGEN	V62B511A-A3194 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
2	YV13	VALVE	NORGEN	V62B511A-A3194 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
3	YV14	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
4	YV15	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
5	YV16	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
6	YV17	VALVE	KINGST	DSG-3C4-N-02-A25 220V AC	EN12266-2	CE
7	YV18	VALVE	KINGST	DSG-3C4-N-02-A25 220V AC	EN12266-2	CE
8	YV19	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
9	YV20	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
10	YV21	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN12266-2	CE
11	FR1	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 6-9A 380V AC	EN80947-4-1	CE
12	FR2	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 6-9A 380V AC	EN80947-4-1	CE
13	FR3	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 1.7-2.6A 240V AC	EN80947-4-1	CE
14	FR4	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 1.7-2.6A 240V AC	EN80947-4-1	CE
15	FR5	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 1.7-2.6A 240V AC	EN80947-4-1	CE
16	FR6	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 1.7-2.6A 240V AC	EN80947-4-1	CE
17	FR7	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 2.8-4.2A 240V AC	EN80947-4-1	CE
18	FR8	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 1.7-2.6A 240V AC	EN80947-4-1	CE
19	FR9	THREMAL OVERLOAD RELAY	FUJI	TR-ON/3 1.7-2.6A 240V AC	EN80947-4-1	CE
20	SB15.1-15.6	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN80947-4-1	CE

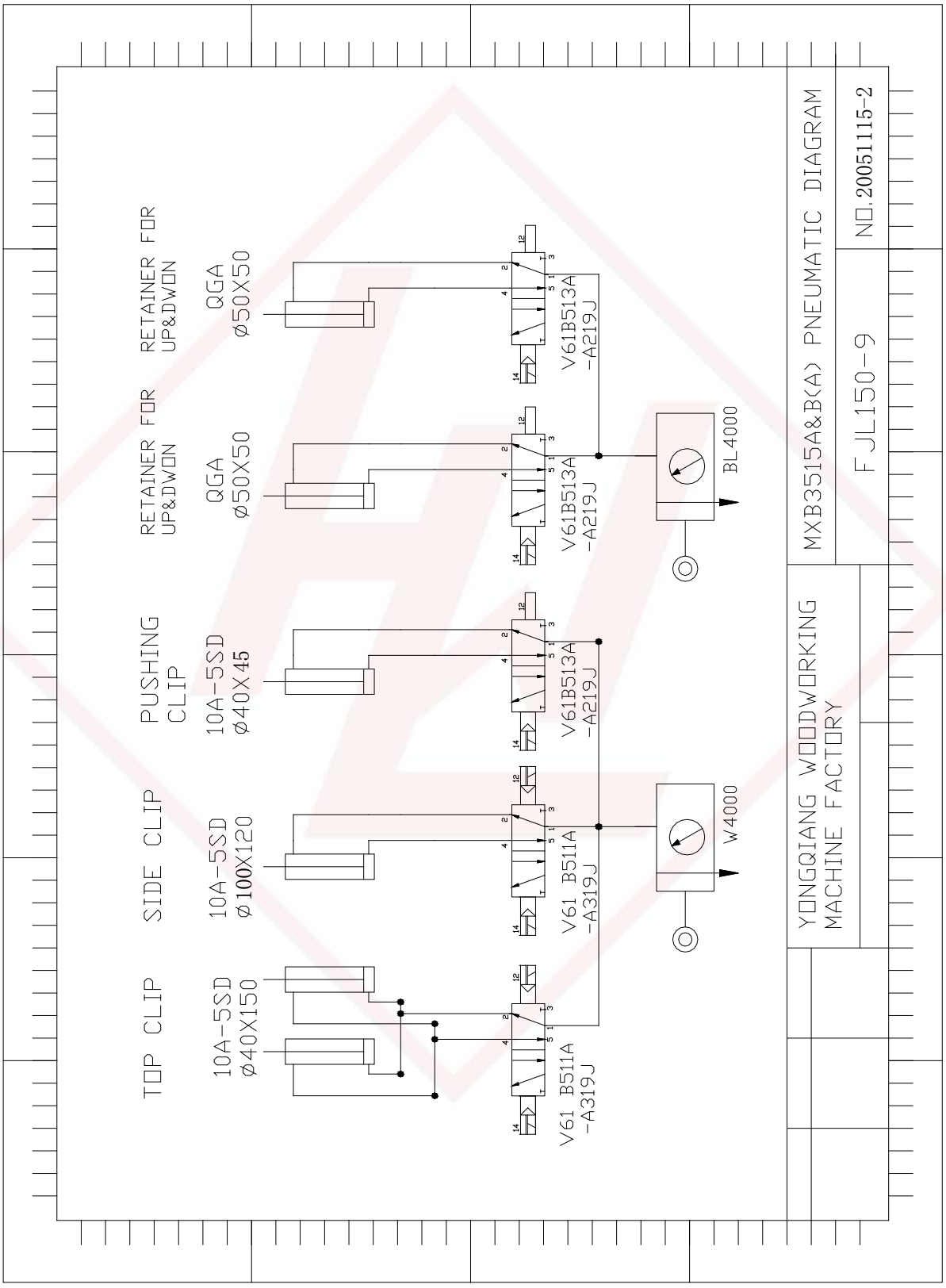
SN	SYNBOL	NAME	MAKER	SPECIFICATION	STANDARD	APP
1	QF1	CIRCUIT-BREAKER	CHNT	DZ47-60 C60 60A 400V 0.75-0.8A AC -5℃ TO 40℃	EN60947-2	CE
2	QF2	CIRCUIT-BREAKER	CHNT	DZ47-60 C60 60A 400V 0.75-0.8A AC -5℃ TO 40℃	EN60947-2	CE
3	QF3	CIRCUIT-BREAKER	CHNT	DZ47-60 C60 60A 400V 0.75-0.8A AC -5℃ TO 40℃	EN60947-2	CE
4	QF4	CIRCUIT-BREAKER	CHNT	DZ47-60 C3 3A 400V 0.65-0.7A AC -5℃ TO 40℃	EN60947-2	CE
5	QF5	CIRCUIT-BREAKER	CHNT	DZ47-60 C3 3A 400V 0.65-0.7A AC -5℃ TO 40℃	EN60947-2	CE
6	QF6	CIRCUIT-BREAKER	CHNT	DZ47-60 C3 3A 400V 0.65-0.7A AC -5℃ TO 40℃	EN60947-2	CE
7	QF7	CIRCUIT-BREAKER	CHNT	DZ47-60 C3 3A 400V 0.65-0.7A AC -5℃ TO 40℃	EN60947-2	CE
8	QF8	CIRCUIT-BREAKER	CHNT	DZ47-60 C3 3A 400V 0.65-0.7A AC -5℃ TO 40℃	EN60947-2	CE
9	TC	REED SWITCH	TENGEN	BK300 180mA 380V AC	EN60747	CE
10	HL1	RED	APT	AD16-22D/S 20mA 380V AC 10W	EN60947-4-1	CE
11	HL2	RED	APT	AD16-22D/S 20mA 380V AC 10W	EN60947-4-1	CE
12	HL3	RED	APT	AD16-22D/S 20mA 380V AC 10W	EN60947-4-1	CE
13	HL4	RED	APT	AD16-22D/S 20mA 380V AC 10W	EN60947-4-1	CE
14	EV	COOL FAN	SUNON	220-240V 50/60HZ 0.14A	EN60947-4-1	CE
15	GS	POWER SUPPLY	OMRON	S8JC-05024 1.0A 185-264V AC 50W -25℃ TO 65℃	EN60947-4-1	CE

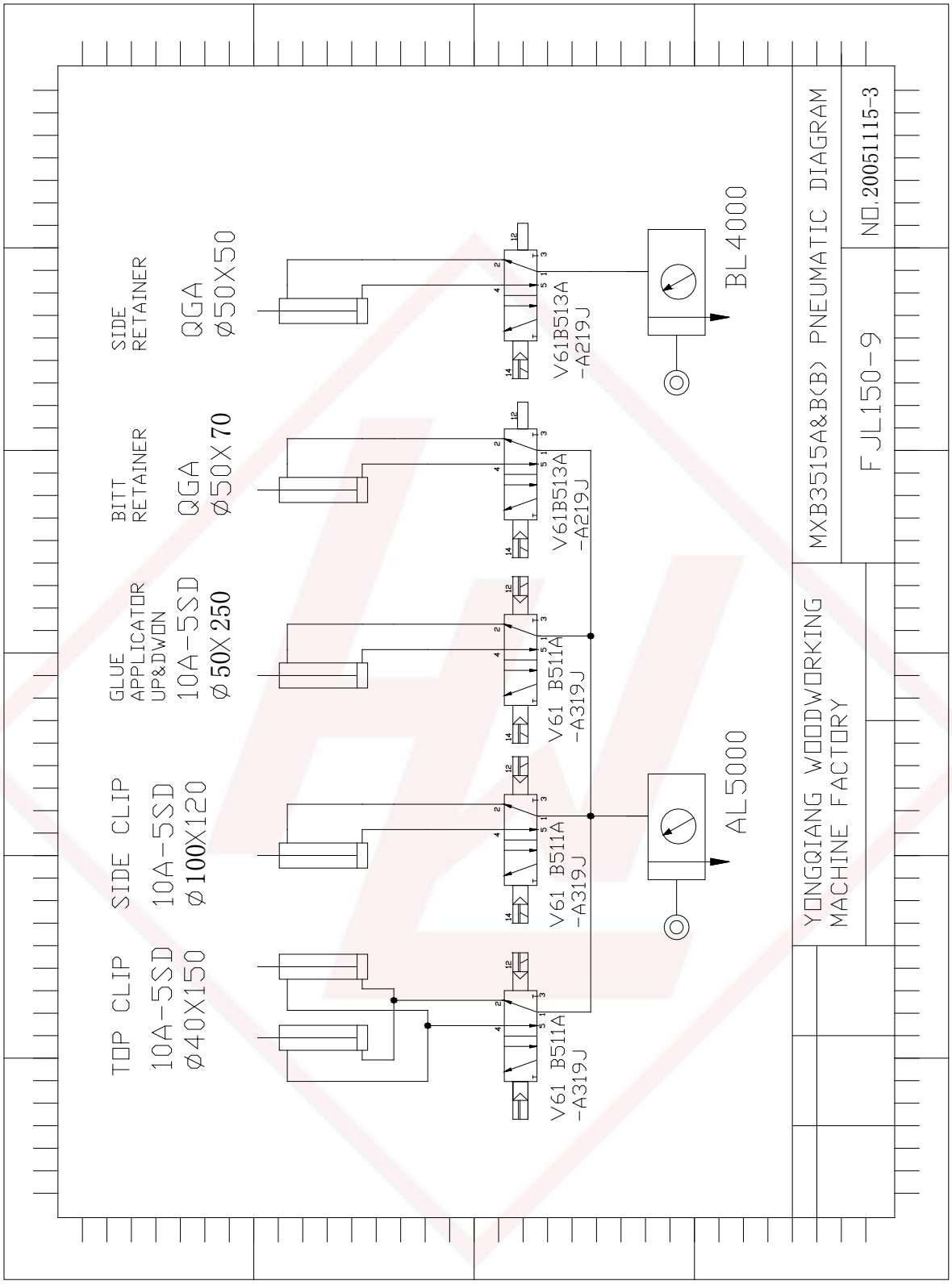
SN	SYNBOL	NAME	MAKER	SPECIFICATION	STANDARD	APP
1	PRS1	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN60947-4-1	CE
2	PRS2	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300Ma 10-30V -25℃ TO DC 70℃	EN60947-4-1	CE
3	PRS3	PROXIMITY SWITCH	SICK	IM12-04NNS-ZW1 300Ma 10-30V -25℃ TO DC 70℃	EN60947-4-1	CE
4	KM1	REED SWITCH	NORGEN	M150/LSU/2V 0.18A AC24 10 W -20℃ TO 80℃	EN60947-4-1	CE
5	KM2-9	REED SWITCH	NORGEN	M150/LSU/2V 0.18A AC24 10 W -20℃ TO 80℃	EN60947-4-1	CE
6	PRS4	PROXIMITY	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN60947-4-1	CE
7	PRS5	PROXIMITY	SICK	IM12-04NNS-ZW1 300mA 10-30V -25℃ TO DC 70℃	EN60947-4-1	CE
8	KM11	REED SWITCH	NORGEN	M150/LSU/2V 0.18A AC24 10 W -20℃ TO 80℃	EN60947-4-1	CE
9	KM12	REED SWITCH	NORGEN	M150/LSU/2V 0.18A AC24 10 W -20℃ TO 80℃	EN60947-4-1	CE
10	PHS1	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC 10-30 -25℃ TO 55℃	EN60947-4-1	CE
11	PHS2	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC 10-30 -25℃ TO 55℃	EN60947-4-1	CE
12	PKS3	PHOTOELECTRIC SWITCH	SICK	WT100-N1439 0.1A DC 10-30 -25℃ TO 55℃	EN60947-4-1	CE
13	SP1	PRESSURE SWITCH	SMC	IS3000-02 4A 30V DC	EN60947-5-1	CE
14	SP2	VALVE	KINGST	JCS-02 3A 250V AC	EN60947-5-1	CE
15	SB6	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
16	SB7	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
17	SB8	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
18	SB9	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
19	SB10	PUSH BUTTONS	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE
20	SB11	SELECTOR SWITCH	APT	LA39 10A 660V AC 10W	EN60947-5-1	CE

SN	SYNBOL	NAME	MAKER	SPECIFICATION	STANDARD	APP
1	KA1-5	REED RELAY	IDCC	RY4S-U 5A 240V AC	EN60947-4-1	CE
2	KA10-21	REED RELAY	IDCC	RY4S-U 5A 24V AC	EN60947-4-1	CE
3	KA22-23	REED RELAY	IDCC	RY4S-U 5A 240V AC	EN60947-4-1	CE
4	KA24	REED RELAY	IDCC	RY4S-U 5A 24V AC	EN60947-4-1	CE
5	KA25	REED RELAY	IDCC	RY4S-U 5A 240V AC	EN60947-4-1	CE
6	KA26-27	REED RELAY	IDCC	RY4S-U 5A 24V AC	EN60947-4-1	CE
7	KM1	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
8	KM2	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
9	KM3	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
10	KM4	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
11	KM5	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
12	KM6	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
13	KM7	MAGNETIC CONTACTOR	FUJI	SC-03 20A 380V AC 4KW	EN60947-5-1	CE
14	Y4	VALVE	NORGEN	V61B513A-A2 10-24V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE
15	Y5	VALVE	NORGEN	V61B513A-A2 10-24V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE
16	Y6	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE
17	Y7	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE
18	Y8	VALVE	NORGEN	V61B511A-A3 10-240V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE
19	Y9	VALVE	NORGEN	V62B511A-A3194 10-240V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE
20	Y10	VALVE	NORGEN	V62B511A-A3194 10-240V -20℃ TO 80℃ AC 10W	EN60947-5-1	CE

PNEUMATIC/ HYDRAULIC PLAN

Pneumatic

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GLUE
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UP&DWON
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BITT
RETAINER
QGA
Ø50X70
SIDE
RETAINER
QGA
Ø50X50
V61 B511A
-A319J
V61 B511A
-A319J
V61 B511A
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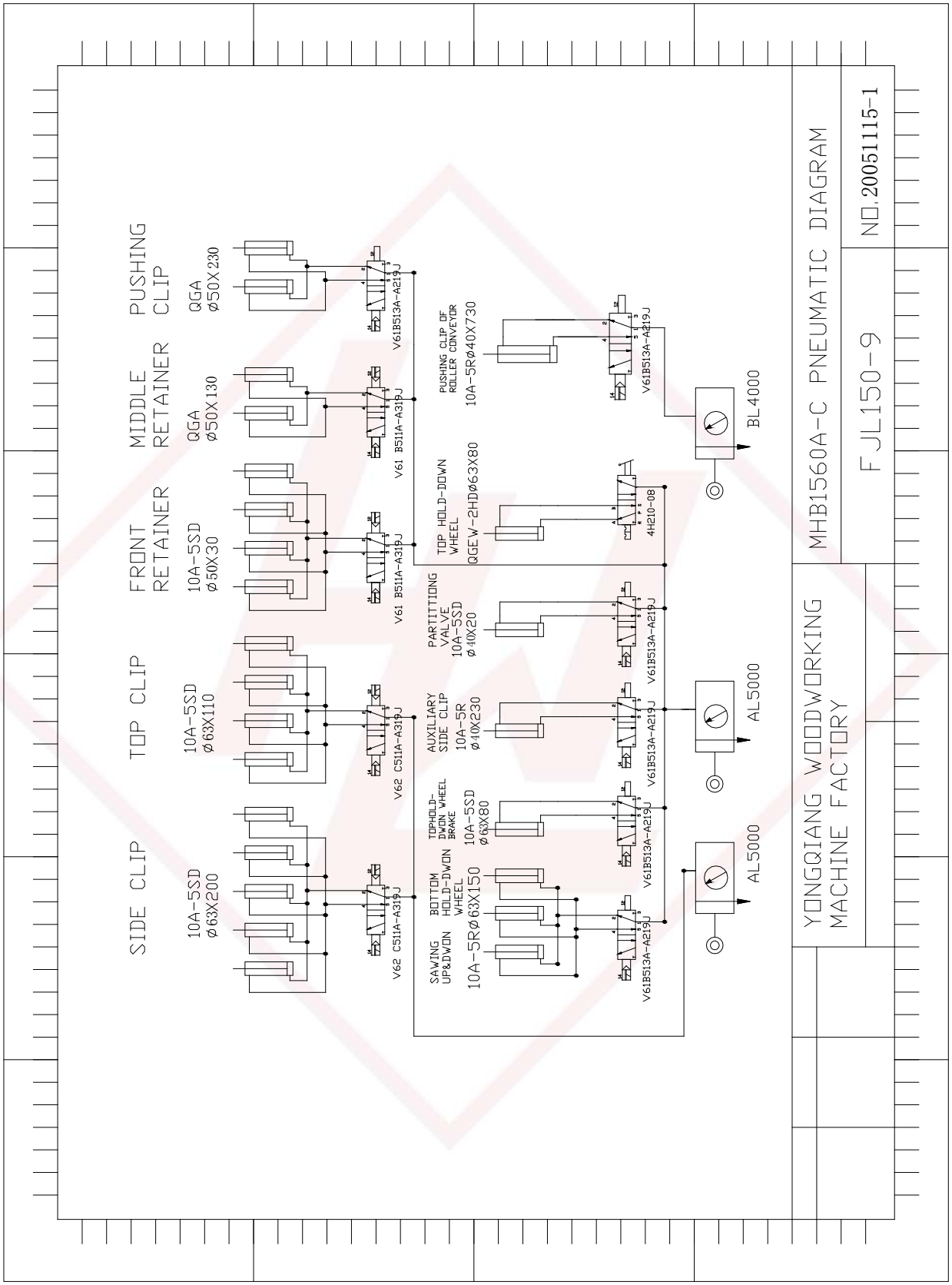
MXB3515A&B(B) PNEUMATIC DIAGRAM
FJL150-9
NO.20051115-3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TOP CLIP
FRONT RETAINER
MIDDLE RETAINER
PUSHING CLIP
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QGA ø50X130
QGA ø50X230
10A-5RØ63X150
10A-5SD ø63X80
10A-5R ø40X230
10A-5SD ø40X20
QGEW-2HDØ63X80
10A-5RØ40X730
SAWING UP&DWON
BOTTOM HOLD-DWON WHEEL BRAKE
TOPHOLD-DWON WHEEL
AUXILIARY SIDE CLIP
PARTITTIONG VALVE
TOP HOLD-DOWN WHEEL
PUSHING CLIP OF ROLLER CONVEYOR
V62 C511A-A319J
V61 B511A-A319J
V61B513A-A219J
4H210-08
AL5000
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YONGQIANG WOODWORKING MACHINE FACTORY
MHB1560A-C PNEUMATIC DIAGRAM
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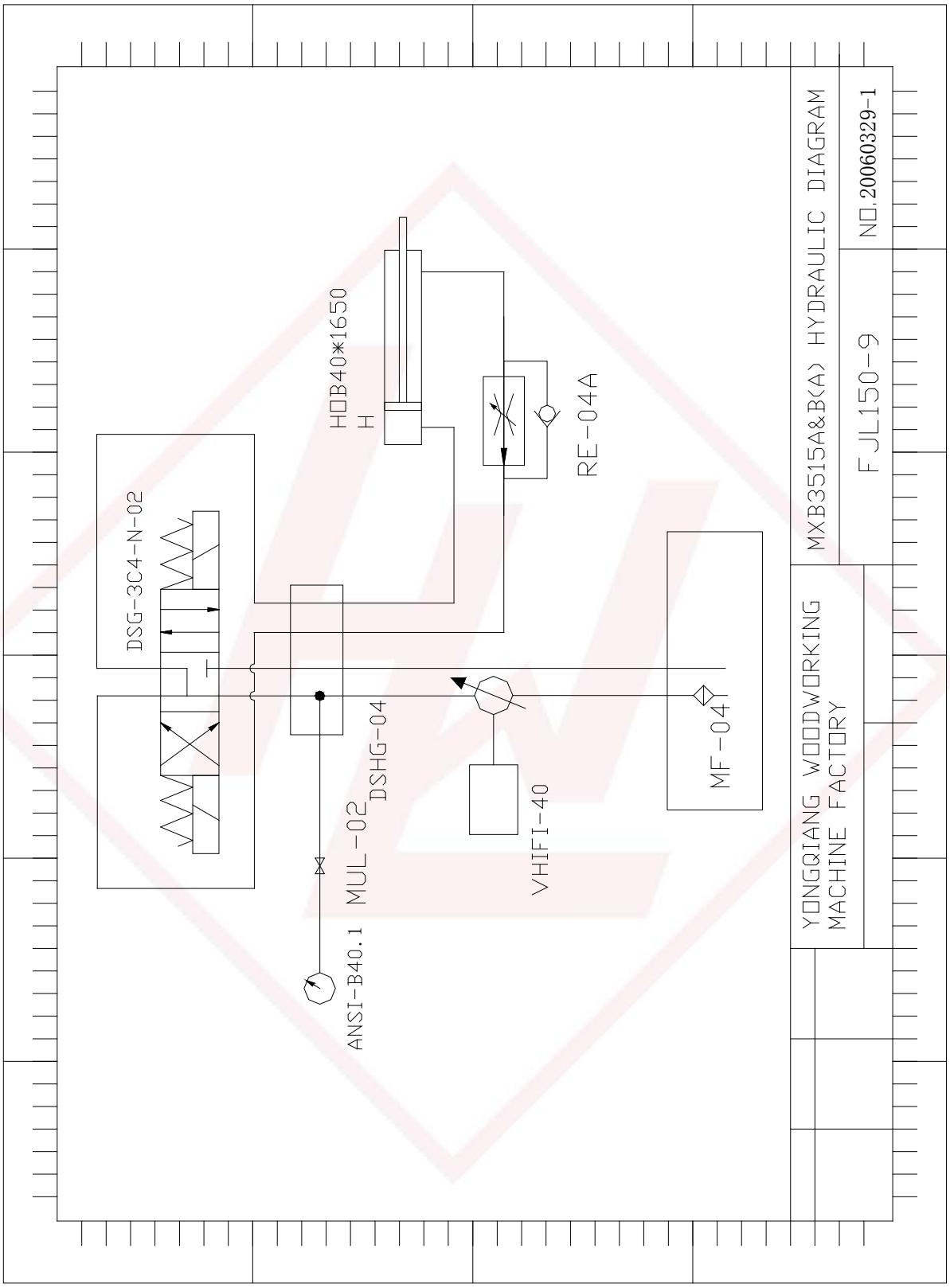
NO.20051115-1

Hydraulic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MACHINE FACTORY
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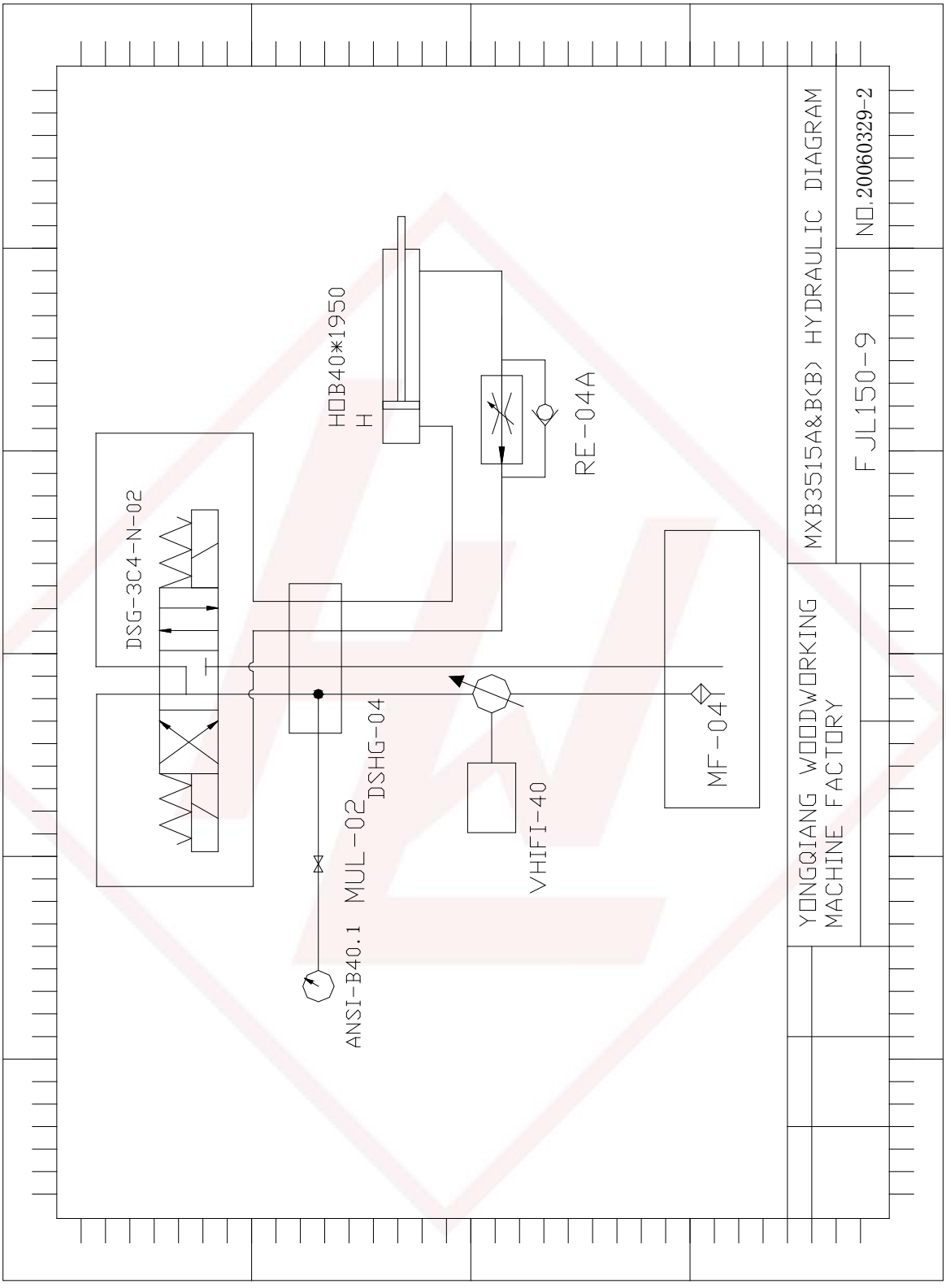
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MF-04
MXB3515A&B(B) HYDRAULIC DIAGRAM
FJL150-9
NO.20060329-2
YONGQIANG WOODWORKING
MACHINE FACTORY